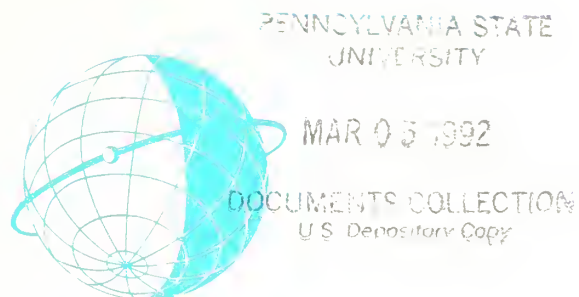


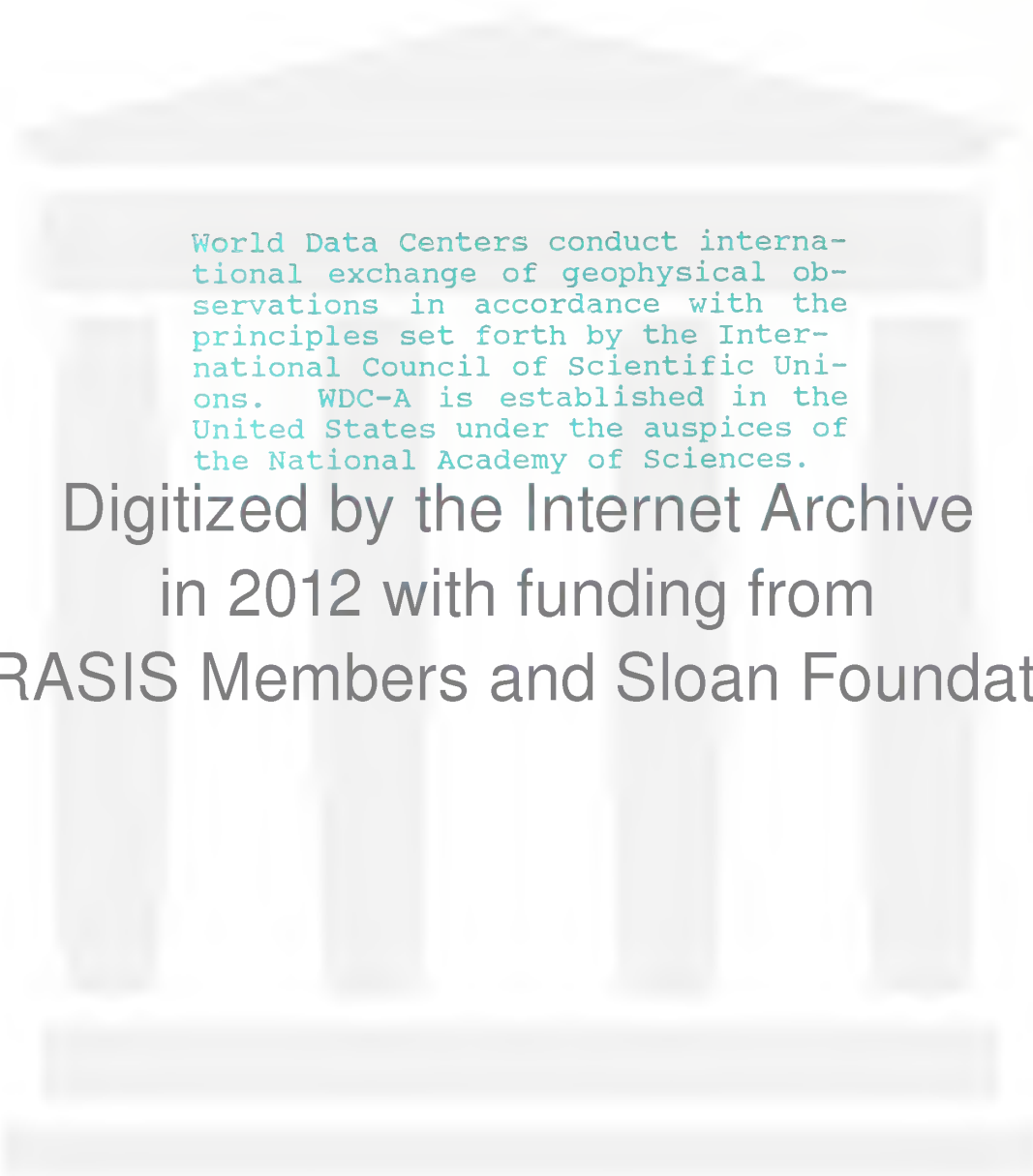
C 35,220/2-3 191

WORLD DATA CENTER A Oceanography



CATALOGUE OF DATA CHANGE NOTICE NOS. 46 and 47

WDCA-OC-91-1



World Data Centers conduct international exchange of geophysical observations in accordance with the principles set forth by the International Council of Scientific Unions. WDC-A is established in the United States under the auspices of the National Academy of Sciences.

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WORLD DATA CENTER A
Oceanography



CATALOGUE OF DATA

CHANGE NOTICE NOS. 46 AND 47
(1 JANUARY- 31 DECEMBER 1990)

WORLD DATA CENTER A
Oceanography
Washington, D.C.

October 1991

ABSTRACT

This change notice lists and describes all data received by WDC-A, Oceanography during the period 1 January - 31 December 1990. It supplements the original six-volume Catalogue of Data, which includes Change Notice Nos. 1-16. The types of data catalogued include oceanographic station data, bathythermograph data, current measurements, biological observations, meteorological observations, and sea surface measurements. An Alphabetical Index of ship names and a Geographical Index of ocean areas assist the user in selecting the required data. Publications are cross referenced by accession number with the WDC-A Catalogue of Accessioned Publications.

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WORLD DATA CENTER A

World Data Center A consists of the Coordination Office and nine subcenters:

World Data Center A,
Coordination Office
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D.C. 20418, U.S.A.

Telephone: (202) 334-3368

GLACIOLOGY (SNOW AND ICE):

World Data Center A,
Glaciology (Snow and Ice)
Cooperative Institute for Research
in Environmental Sciences
University of Colorado
Boulder, Colorado 80309, U.S.A.

Telephone: (303) 492-5171
FTS 320-5311

ROCKETS AND SATELLITES:

World Data Center A,
Rockets and Satellites
Goddard Space Flight Center
NASA, Code 601
Greenbelt, Maryland 20771
U.S.A.

Telephone: (301) 344-6695
FTS 344-6695

METEOROLOGY (AND NUCLEAR RADIATION):

World Data Center A,
Meteorology
National Climatic Data Center
NOAA Federal Building
Asheville, North Carolina 28801
U.S.A.

Telephone: (704) 257-0682
FTS 672-0682

ROTATION OF THE EARTH

World Data Center A,
Rotation of the Earth
U.S. Naval Observatory
Washington, D.C. 20390, U.S.A.

Telephone: (202) 653-1529

OCEANOGRAPHY:

World Data Center A,
Oceanography
National Oceanic and Atmospheric
Administration
Washington, D.C. 20235, U.S.A.

Telephone: (202) 606-4571
FTS 266-4571

SEISMOLOGY

World Data Center A,
Seismology
U.S. Geological Survey, MS-967
Box 25046
Denver Federal Center
Denver, Colorado 80225, U.S.A.

Telephone: (303) 236-1510
FTS 776-1510

SOLAR-TERRESTRIAL PHYSICS
(SOLAR AND INTERPLANETARY
PHENOMENA, IONOSPHERIC
PHENOMENA, FLARE-ASSOCIATED
EVENTS, GEOMAGNETIC VARIATIONS,
MAGNETOSPHERIC AND INTER-
PLANETARY MAGNETIC PHENOMENA,
AURORA, COSMIC RAYS, AIRGLOW):

World Data Center A,
Solar-Terrestrial Physics
NOAA, E/GC2
325 Broadway
Boulder, Colorado 80303, U.S.A.

Telephone: (303) 497-6323
 FTS 320-6323

SOLID-EARTH GEOPHYSICS
(TSUNAMIS, GRAVIMETRY, EARTH
TIDES, RECENT MOVEMENTS OF THE
EARTH'S CRUST, MAGNETIC
MEASUREMENTS, PALEOMAGNETISM
AND ARCHEOMAGNETISM, VOLCANOLOGY,
GEOTHERMICS):

World Data Center A,
Solid-Earth Geophysics
NOAA, E/GC1
325 Broadway
Boulder, Colorado 80303, U.S.A.

Telephone: (303) 497-6521
 FTS 320-6521

MARINE GEOLOGY AND GEOPHYSICS
(GRAVITY, MAGNETICS, BATHYMETRY,
SEISMIC PROFILES, MARINE SEDIMENT
AND ROCK ANALYSES):

World Data Center A,
Marine Geology and Geophysics
NOAA, E/GC3
325 Broadway
Boulder, Colorado 80303, U.S.A.

Telephone: (303) 497-6487
 FTS 320-6487

PREFACE

The six-volume Catalogue of Data and the loose-leaf Change Notice Nos. 1-16, which have been integrated into the Catalogue, now list all oceanographic data received by World Data Center A, Oceanography, from July 1957 through June 1975. The Catalogue has a loose-leaf arrangement of sheets, which have been punched for standard three-ring binders. It includes station location charts for many cruises.

Beginning with Change Notice No. 17, each Change Notice is printed in a modified format as a separate, bound publication describing all data received during a particular six-month or one-year period. The six-volume Catalogue of Data, including Change Notice Nos. 1-16, continues to serve as a reference volume for data received from July 1957 through June 1975. Provision has been made in the modified format for correlating newly received data for a particular cruise with data previously received for that same cruise and already described in a prior Change Notice.

The capability for identifying those data, which have been machine-processed by a national, regional, or responsible national oceanographic data center, has been retained in the modified catalogue format. In addition, this format provides a column for listing the catalogue number from the WDC-A, Oceanography, Catalogue of Accessioned Publications, thus identifying the published report in which the referenced data appear.

Data gathered before the beginning of the IGY in 1957 are not usually catalogued by the World Data Centers. However, extensive collections of pre-IGY oceanographic data gathered by various countries are available through the facilities of this Center. These data for the most part are oceanographic serial station data, surface and related data available in automated form. Machine listings and magnetic tapes containing these data can be prepared upon request.

WDC-A, Oceanography, welcomes suggestions for improved ways to present information in the Change Notices to the Catalogue of Data. It will make every effort to promptly correct any cataloguing error or omission brought to its attention.

INTRODUCTION

The World Data Center system was established in 1957 to collect data from the numerous and widespread observational programs of the International Geophysical Year (IGY) under the principles set forth by the International Council of Scientific Unions (ICSU) and to make such data readily accessible for an indefinite period of time to interested scientists and scholars. The system consists of World Data Center A (WDC-A) located in the U.S.A.; WDC-B located in the U.S.S.R.; WDC-C located in Western Europe and Japan; and WDC-D located in the People's Republic of China. WDC-A is established under the auspices of the U.S. National Academy of Sciences, where the Coordination Office is located. WDC-A is divided into nine discipline subcenters whose addresses are given on pages iv and v. These centers are located in institutions which, in the opinion of the Academy, can best serve the interests of science because of their data-handling capabilities for the appropriate scientific disciplines. WDC-A, Oceanography, is collocated with the National Oceanographic Data Center (NODC) in Washington, D.C.

After completion of the IGY program, ICSU delegated the responsibility for the operation of the World Data Centers to its Comité International de Géophysique (CIG) and subsequently to the ICSU Panel on World Data Centres. The framework for continued international exchange of oceanographic data is set forth in ICSU's Guide to International Data Exchange through the World Data Centres and the Intergovernmental Oceanographic Commission's (IOC's) Manual on International Oceanographic Data Exchange.

The types of oceanographic data desired for inclusion in the World Data Center system are those from Declared National Programs (DNP's) and international cooperative expeditions. DNP's are those for which a nation intends to exchange the resulting data internationally. Data are to be exchanged internationally in accordance with provisions of the IOC's Manual and the ICSU Guide. Lists of National Oceanographic Programs (NOP's) are compiled by the various national committees on oceanography and submitted to the Intergovernmental Oceanographic Commission for dissemination.

Contributors of oceanographic data to the World Data Center system and national committees on oceanography are urged to compare the Catalogue of Data with their Declared National Programs published in IOC information documents to determine whether the cruises actually completed agree with those listed and to ensure that the data resulting from them are transmitted to the World Data Centers in the manner prescribed by the IOC Manual and the ICSU Guide. Data need not be limited to those represented by DNP's or NOP's; WDC-A, Oceanography, welcomes additional data that fall within the framework of the ICSU Guide and the IOC Manual and that contributors may wish to include in the World Data Center system.

HOW TO USE THE CHANGE NOTICE TO THE CATALOGUE OF DATA

Catalogue Numbering System

The catalogue numbering system uses groups of numbers and letters to designate identifying references for purposes of data archiving and retrieval. A catalogue number consists of numerals for the assigned: series, country, institution, ship and cruise.

Series -- The catalogue numbering system is divided into basic groups called series. At present, these consist of the 100 series for data from ships and other mobile platforms and the 200 series for data from shore and fixed stations in the following categories:

- a. Coastal and island stations.
- b. Near shore manned stations; i.e., lightvessels and platforms.
- c. Offshore manned stations; i.e., ocean weather ships.
- d. Unmanned stations; i.e., automatic buoys.
- e. Stations on shipping routes.
- f. Offshore reference stations visited regularly.
- g. Cables in use for oceanographic observations.
- h. Repetitive drifting observations; i.e., ice islands, drifting buoys.

Country -- A list in the Indexes section includes all countries and institutions from which this Center has received data during this period together with their discrete identifying numbers. The series and two-digit country number comprise the first three digits of the catalogue number.

Example: For country number 1, Argentina, data from ships and mobile platforms are catalogued as 101, and data from shore and fixed stations as 201.

NOTE: The designations of countries used in this catalogue do not imply the expression of any opinion whatsoever on the part of this Center concerning the legal status of any country or territory, or of its authorities, or concerning the delineation of the frontiers of any country or territory.

Institution -- An institution which contributed data, either directly or through its designated national agency or national, regional or specialized oceanographic data center, is assigned a decimal number following the series/country number.

Example: The number 101.01 is assigned to data taken by ships and mobile platforms and received from the Argentine Servicio de Hidrografia Naval, and the number 201.01 is assigned to data taken at shore and fixed stations and received from the same institution.

Ship -- Each ship, or in some instances a group of ships operating together, is assigned a letter following the series/country/institution number. The letter is followed by a number assigned to the particular cruise as the data are received.

NOTE: The term "cruise" is used in this catalogue to define, whenever possible, the beginning and ending dates of a series of data collected by a ship, usually identified by the contributing institution with a cruise name and/or number. Sometimes it is necessary to group together several series of data from one or more ships under one catalogue number.

Example: The first cruise data received from the Argentine Servicio de Hidrografia Naval are from the ship CAPITAN CANEPA, which is assigned the letter A, followed by the number 01, thus A-01; the second cruise is A-02, the third A-03, etc. Thus, the catalogue numbers 101.01 A-01, A-02, A-03, etc.

A similar system is used in the 200-series for ships but is not applied to lightvessels and fixed shore stations; for the latter the ship/cruise identifier is omitted. For these categories, the series/country/institution numbers are given, but the lightvessel's or station's name must be added instead of the ship/cruise number to complete the catalogue identification.

Example: The Canadian station at Triple Island is identified as: 206.03 Triple Island.

A shore station is listed under the country in or near whose territory it is located. If observations are carried out and the data contributed by an institution of another country, the observing country's name and institution are listed after the name of the country of location.

How to Use the Alphabetical Index

1. Look up the name of the ship or fixed station in the Alphabetical Index where the related country/institution/ship catalogue numbers are listed.

2. Look up, under the respective countries, the indicated Catalogue Numbers.

How to Use the Geographical Index

1. Obtain the geographic area number and name from the Geographical Index Charts.

2. Look up the list of catalogue numbers of available data for the area in the Geographical Index.

3. Use these catalogue numbers to locate information about the types and amount of data available.

How to Obtain Data from WDC-A, Oceanography

When communicating with the Center for additional information concerning data, always refer to the specific catalogue numbers for data of interest to you. The catalogue numbers are designed to speed the identification and retrieval of the information or data you need.

Address all correspondence to:

Director
World Data Center A, Oceanography
National Oceanic and Atmospheric Administration
Washington, D.C. 20235, U.S.A.

If you telephone, the area code is 202.

The Associate Director's number is 606-4571.
The Data Archives number is 606-4571.

If you wish to visit the Center, its office hours are from 6:30 a.m. to 4:00 p.m., Monday through Friday. The Center is not open on Saturdays, Sundays, and U.S. national holidays. If you wish the use of study space, you should, if possible, give the Center a day or two advance notice so that necessary arrangements can be made. There is no charge for the use of study space.

Data Exchange Policy of World Data Center A, Oceanography

World Data Centers are held responsible for the provision of data and information to qualified requesters in the scientific community either in exchange or at a cost not to exceed that of processing and shipping. Unless a requester specifies otherwise, the Center is responsible for using the method which most satisfactorily reproduces the data or information item at the least cost. For certain types of requests, limitations in funding, personnel, or facilities may preclude direct or free provision of data or information by the World Data Center.

Data exchanges between WDC-A, Oceanography and WDC's in the same discipline usually take place without charge for routine exchanges of mutually agreed-upon types of data received by WDC-A in internationally-approved data exchange formats and in readily reproducible media forms. Non-standard data types are not normally exchanged. The ICSU Panel has now recognized that it is not always economically feasible to copy large data sets from one WDC to another. For certain types of data, the exchange of inventories of available data in a WDC subcenter may be considered acceptable in lieu of the transfer of the actual data sets.

In general, reasonably-sized requests from national or regional contributors to WDC-A, Oceanography may be considered as exchange, and equivalent data thus provided to the requester without charge. For requests for unusually large amounts of data, for specially formatted data, for derived data products, or for data to be obtained from outside the WDC system, WDC-A will normally be required to recover the costs of processing and shipping, or, at its discretion, may arrange for the request to be serviced by an RNODC or a regional, national, or disciplinary center. WDC-A may serve as an intermediary or coordinator for requests for unique types of data or data in other disciplines by placing the originator of the request in contact with the appropriate institution or disciplinary center.

Normally, WDC-A, Oceanography considers its data exchange commitment with a cooperating Data Center to be limited to the servicing of those requests or routine updating requirements intended to build or enhance standard data bases operated by that Center for specific, mutually agreed-upon data types and geographical areas of national or scientific interest. If the availability of funding and resources permit, WDC-A also attempts to assist such cooperating Data Centers when they require special data sets for institutions that are performing project-related research for international climate and global change programs and/or that have historically contributed data to WDC-A, Oceanography through that Data Center. WDC-A, Oceanography is obliged, in any case, to follow the exchange and cost recovery policies of its sponsoring (funding) government agency, while attempting to maintain consistency with data exchange guidelines of the ICSU Panel on WDC's as published in the ICSU Guide.

Data and information may be requested from WDC-A, Oceanography through NODCs, Designated National Agencies, or any other organization identified by national or international initiatives as responsible for communication with the World Data Centers. These materials may also be requested directly from WDC-A, Oceanography. Organizations, institutions, or individuals from Member States of the IOC may apply to the IOC Secretariat or UNESCO for possible assistance in funding their projects.

Data Centers or institutions in the international community that have acquired an automated data set or specialized data product from WDC-A must be aware that the original data set may be updated from time to time, errors corrected, or spurious data deleted by the originating data center. Where duplicate data sets are deliberately held in this way, the holder is responsible for making regular contact, as required, with the originating center to check whether the old data set is still valid, whether it should be deleted, or whether new data are available. WDC-A bears no responsibility in the conduct of these arrangements, except as regards the provision of information in its role as a coordination and referral center.

Acknowledgment of Data Sources

In many instances, data contributed to the Center are unpublished at the time of receipt. Unpublished data can be identified in the Change Notice by the absence of a publication number in the column entitled Data Center Reference Number. Accordingly, as stipulated by the Guide, recipients of copies of such data from the Center are reminded that the rights of the original investigators must always be respected. Thus, it is requested that if any data supplied by Center are published, due acknowledgment be made of the institution which undertook the original observations. To facilitate proper acknowledgment, the Change Notice indicates the originating institution.

PART I
CATALOGUE INDEXES

EXPLANATION OF THE ALPHABETICAL INDEX OF SHIPS AND FIXED STATIONS

This index presents in alphabetical order the names of the ships, lightvessels, platforms, and shore stations that are listed on the Data Information sheets.

Ship or Fixed Station -- The name of the ship, lightvessel, platform, lighthouse, shore station, etc. Names of ships and lightvessels are given in capital letters, with lightvessels identified by (LV) after their name. All others not so identified are shore or other types of fixed stations.

Country -- The name of the country that used the ship to collect data, or the name of the country in or near whose territory fixed oceanographic stations observations were made. If the data were collected by an institution of another country, the contributing country is listed after the one where the observations were taken.

Catalogue Number -- The country and institution numbers and ship letter assigned to each ship are given in this column to facilitate locating data information in the catalogue.

EXPLANATION OF THE GEOGRAPHICAL INDEX

The Geographical Index is based on the divisions of areas shown on the three charts immediately preceding the Index. These divisions are defined in "Limits of Oceans and Seas," Special Publication No. 23 of the International Hydrographic Bureau, third edition, Monaco, 1953. To define the extensive areas of the Atlantic, Indian, and Pacific Oceans more specifically, the following subdivisions have been added:

23 - <u>North Atlantic Ocean</u>	57 - <u>North Pacific Ocean</u>
23a - Northeast Atlantic	57a - Northwest Pacific
23b - Northwest Atlantic	57b - Northeast Pacific
32 - <u>South Atlantic Ocean</u>	61 - <u>South Pacific Ocean</u>
32a - Southeast Atlantic	61a - Southwest Pacific
32b - Southwest Atlantic	61b - Southeast Pacific
45 - <u>Indian Ocean</u>	SO - <u>Southern Oceans</u>
45a - Northwest Indian	South of latitude
45b - Northeast Indian	50° South
45c - Southwest Indian	
45d - Southeast Indian	

The catalogue numbers of ship cruises extending into any of the areas, or shore or fixed stations located in the areas, are listed under the area's number and name.

ALPHABETICAL INDEX

SHIP OR FIXED STATION	COUNTRY	CATALOGUE NUMBER	
- A -			
ACONA	U.S.A.	139.20	A
ACT 3	UNITED KINGDOM	138.02	K
ACT 4	UNITED KINGDOM	138.02	K
ACT 6	UNITED KINGDOM	138.02	K
ADELAIDE	AUSTRALIA	102.06	A
AKADEMIK KOROLEV	U.S.S.R.	137.06	H
ALBATROSS IV	U.S.A.	139.23	D
ALEXANDER AGASSIZ	U.S.A.	139.08	H
ALTAIR	MEXICO	125.03	C
AMM. MAGNAGHI	ITALY	123.06	C
ANRO ASIA	SINGAPORE	181.01	A
ANRO AUSTRALIA	AUSTRALIA	102.06	A
ATLANTIS II	U.S.A.	139.01	C
AUSTRALIAN PROGRESS	AUSTRALIA	102.06	A
AVON	GERMANY (Federal Republic)	114.01	R
AWAZI	JAPAN	124.13	B
- B -			
BAFFIN	CANADA	106.09	C
BARTLETT	U.S.A.	139.03	II
BIOMAR I	VENEZUELA	153.03	A
BOGUSLAV	U.S.S.R.	137.06	Y
BORKUMRIFF (LV)	GERMANY (Federal Republic)	214.01	
BUCCANEER	ECUADOR	110.03	A
BURTON ISLAND	U.S.A.	139.09	D
BUSAN 852	KOREA	143.02	T
		243.01	C
- C -			
CANBERRA	AUSTRALIA	102.06	A
CANTERBURY	NEW ZEALAND	127.02	A
CAPE PILLAR	AUSTRALIA	102.06	A
CAPRICORNE	FRANCE	113.03	H
		113.18	B
CARRILLO	PERU	130.02	A
CEDARWOOD	CANADA	106.13	E
CHARLES DARWIN	UNITED KINGDOM	138.10	B
CHOFU MARU	JAPAN	124.10	D
CIROLANA	UNITED KINGDOM	138.05	C
COLUMBUS VICTORIA	GERMANY (Federal Republic)	114.01	R
COLUMBUS VIRGINIA	GERMANY (Federal Republic)	114.01	R
COLUMBUS WELLINGTON	GERMANY (Federal Republic)	114.01	R
COOK	AUSTRALIA	102.06	A
CORIOLIS	FRANCE	113.03	D
		113.07	J
- D -			
DAISETU	JAPAN	124.13	B
DARWIN	AUSTRALIA	102.06	A

ALPHABETICAL INDEX

SHIP OR FIXED STATION	COUNTRY	CATALOGUE NUMBER
DAVID STARR JORDAN	U.S.A.	139.23 Y
DAWSON	CANADA	106.09 I
DELAWARE II	U.S.A.	139.23 P
DERWENT	AUSTRALIA	102.06 A
DILKARA	UNITED KINGDOM	138.02 K
DISCOVERER	U.S.A.	139.23 K
DISCOVERY	UNITED KINGDOM	138.05 B
- E -		
ELBE 1 (LV)	GERMANY (Federal Republic)	214.01
ELBE EXPRESS	GERMANY (Federal Republic)	114.01 R
ELGAREN	SWEDEN	135.01 J
ENDEAVOR	U.S.A.	139.05 C
ENDEAVOUR	CANADA	106.19 F
ESAN	JAPAN	124.13 B
ETIZEN	JAPAN	124.13 B
EVERGREEN	U.S.A.	139.17 A
- F -		
FEHMARNBELT (LV)	GERMANY (Federal Republic)	214.01
FLINDERS	AUSTRALIA	102.06 A
FRAAY	SOUTH AFRICA	136.01 I
FRANK HARVEY	SOUTH AFRICA	136.04 A
- G -		
GAUGIN	FRANCE	113.07 J
GADUS ATLANTICA	CANADA	106.09 AA
GANGWON 867	KOREA	143.02 X
G. B. REED	CANADA	106.04 I
GLACIER	U.S.A.	139.16 M
GYRE	U.S.A.	139.07 H
GYUNGBUK 853	KOREA	143.02 U
- H -		
HAKUHO MARU	JAPAN	124.24 B
HAKUSHIN MARU	JAPAN	124.20 E
HOBART	AUSTRALIA	102.06 A
HOKUSEI MARU	JAPAN	124.02 C
HOKUYO MARU	JAPAN	124.20 G
HUDSON	CANADA	106.09 F
- I -		
INCHEON 866	KOREA	143.02 Y
ISLA FLOREANA	ECUADOR	110.03 A
IWAKI	JAPAN	124.13 B

ALPHABETICAL INDEX

SHIP OR FIXED STATION	COUNTRY	CATALOGUE NUMBER	
- J -			
JEAN CHARCOT	FRANCE	113.14	A
		113.18	C
JEBSEN SOUTHLAND	GERMANY (Federal Republic)	114.01	R
JEONBUK 868	KOREA	143.02	V
- K -			
KAIYO	JAPAN	124.13	B
KAKADIAMAA	GHANA	116.01	E
KEIFU MARU	JAPAN	124.01	F
Kiel (LH)	GERMANY (Federal Republic)	214.01	
KINSEI MARU	JAPAN	124.20	C
KNORR	U.S.A.	139.01	I
KOFU MARU	JAPAN	124.08	D
KOLN ATLANTIC	GERMANY (Federal Republic)	114.01	T
KOSIKI	JAPAN	124.13	B
KOYO MARU	JAPAN	124.16	A
KUNIGAMI	JAPAN	124.13	B
KUZURYU	JAPAN	124.13	B
KYMA	U.S.A.	139.18	A
- L -			
LA SALLE	VENEZUELA	153.01	B
LE NOROIT	FRANCE	113.03	E
		113.07	I
		113.14	F
LE SUROIT	FRANCE	113.14	E
LENSK	U.S.S.R.	137.06	Z
LILLOOET	GERMANY (Federal Republic)	114.01	R
- M -			
MANCHESTER	UNITED KINGDOM	138.02	K
MARIA PAOLINA	ITALY	123.04	F
MARION DUFRESNE	FRANCE	113.07	H
MATUSIMA	JAPAN	124.13	B
MEIRING NAUDE	SOUTH AFRICA	136.01	C
MEIYO	JAPAN	124.13	B
MELVILLE	U.S.A.	139.08	Q
MERIDIAN	U.S.S.R.	137.02	F
MORESBY	AUSTRALIA	102.06	A
MICRONESIAN COMMERCE	PANAMA	156.01	A
MICRONESIAN INDEPENDENCE	PANAMA	156.01	A
MILLER FREEMAN	U.S.A.	139.23	X
MOALE	U.S.A.	139.37	E
MOANA PACIFIC	PANAMA	156.01	A
MOANA WAVE	U.S.A.	139.26	C
MT. MITCHELL	U.S.A.	139.23	Q

ALPHABETICAL INDEX

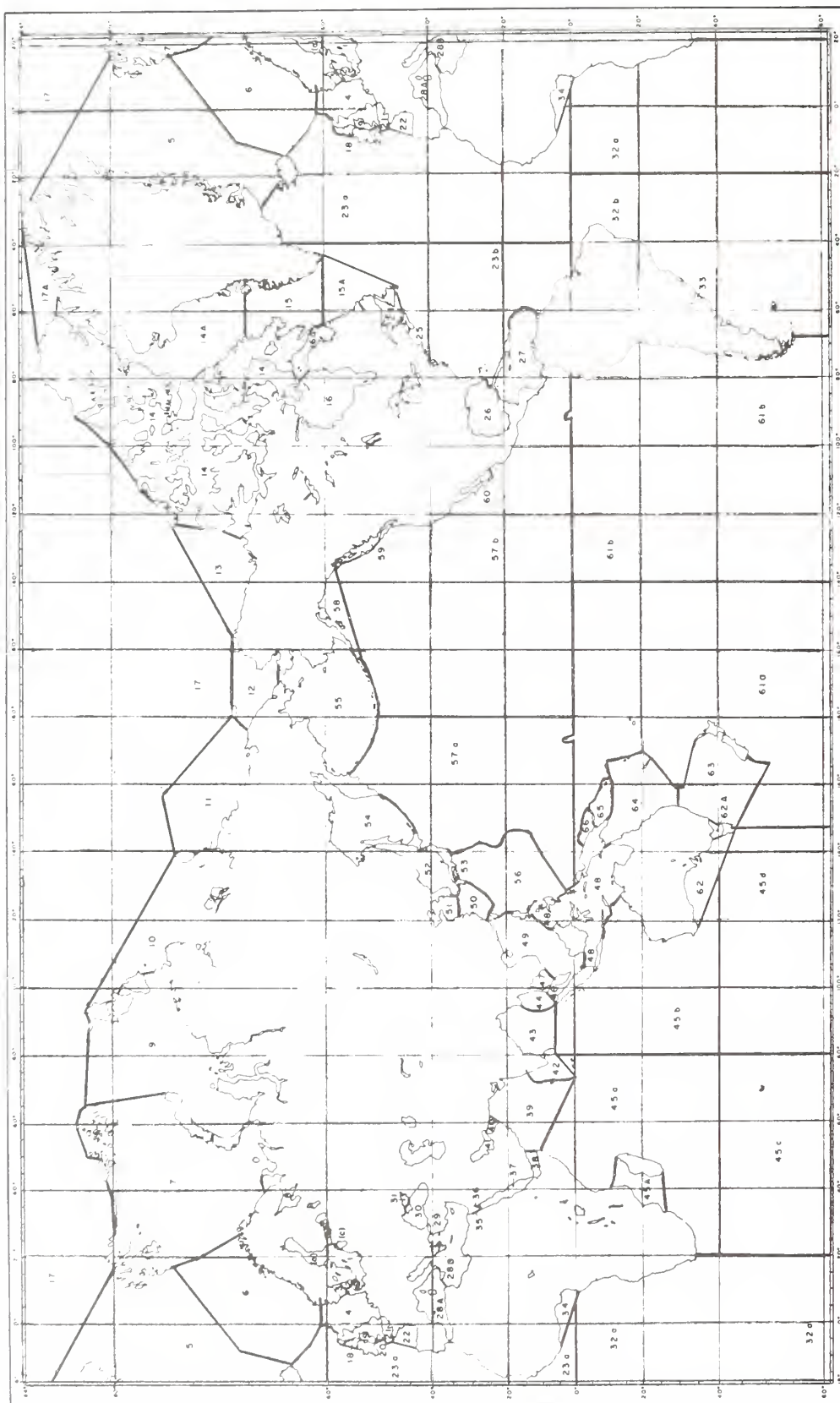
SHIP OR FIXED STATION	COUNTRY	CATALOGUE NUMBER	
- N -			
Neah Bay	U.S.A.	239.02	
NEDLLOYD KATWIJK	NETHERLANDS	126.02	B
NEDLLOYD KEMBLA	NETHERLANDS	126.02	B
NEDLLOYD KIMBERLY	NETHERLANDS	126.02	B
NEDLLOYD KINGSTON	NETHERLANDS	126.02	B
NEW GLASCOV	CANADA	106.13	G
NEW HORIZON	U.S.A.	139.08	V
Nordsee (Platform)	GERMANY (Federal Republic)	214.01	
NORTHWIND	U.S.A.	139.16	B
NOTO	JAPAN	124.13	B
- O -			
OCEANOGRAPHER	U.S.A.	139.23	L
OCEANUS	U.S.A.	139.01	L
OREGON II	U.S.A.	139.23	F
OSHAWA	CANADA	106.01	B
OSHO RO MARU	JAPAN	124.02	B
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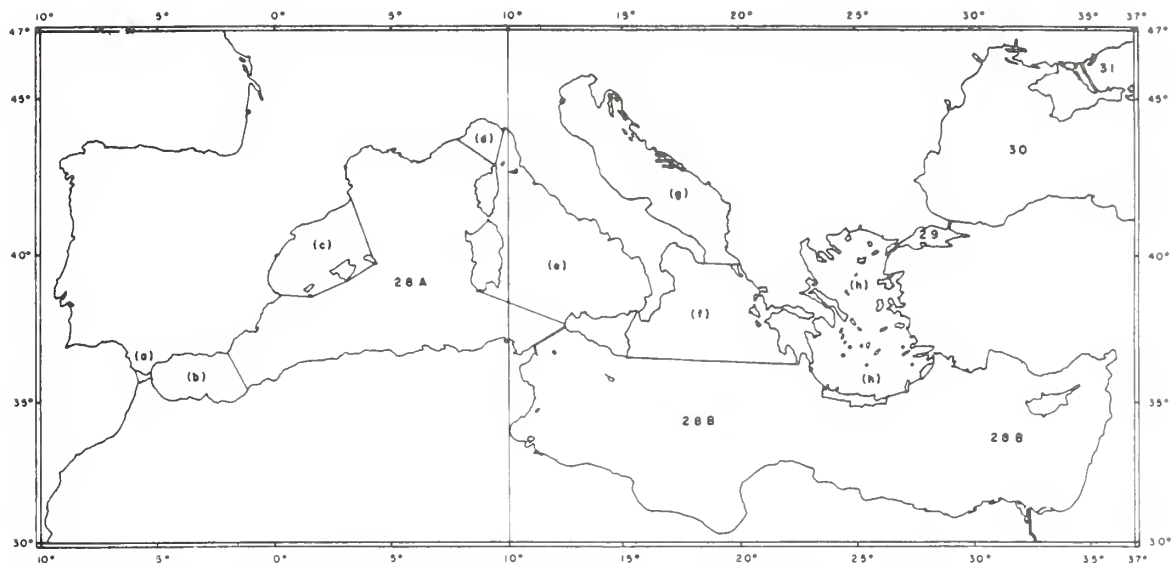
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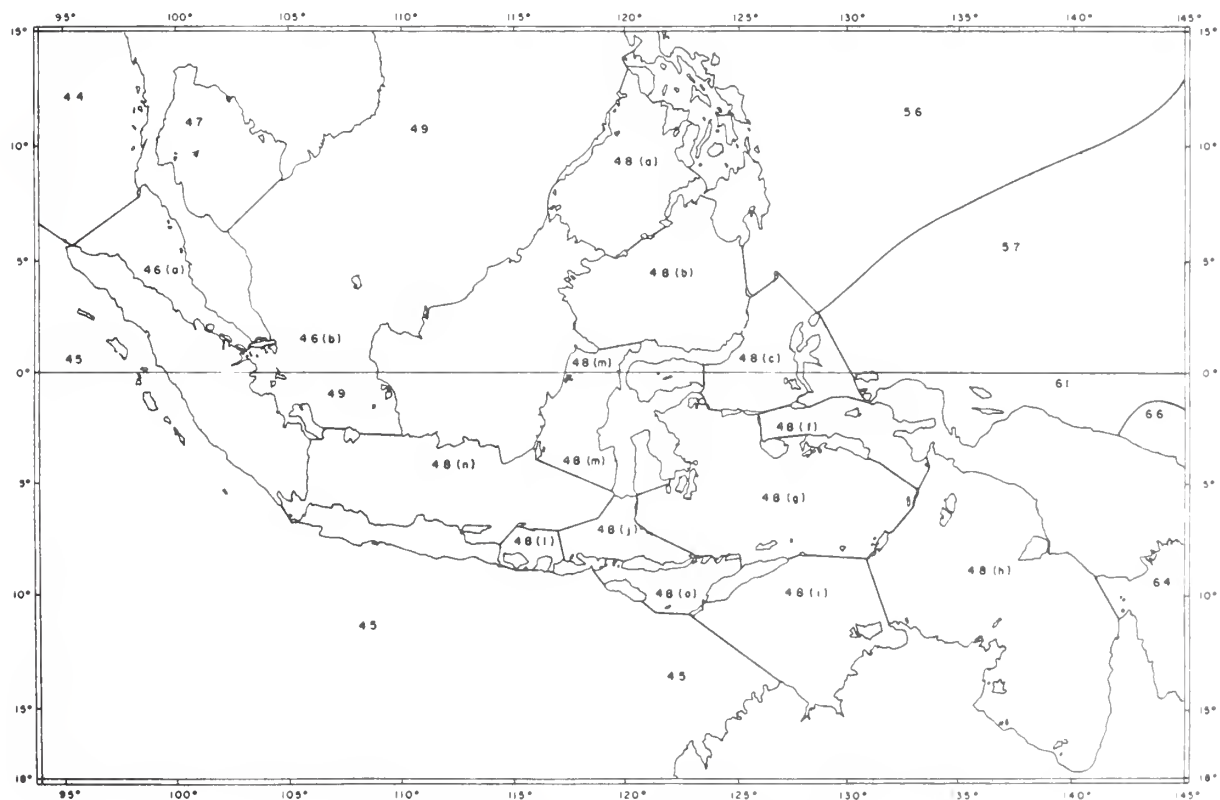
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LIST OF INITIALS OF DATA CENTERS

AODC	Australian Oceanographic Data Centre
BNDO	Bureau National des Donnees Oceaniques, France
CEADO	Centro Argentino de Datos Oceanograficos
CECOLDO	Centro Colombiano de Datos Oceanograficos
CEDO	Centro Espanol de Datos Oceanograficos
CENADO	Centro Nacional de Datos Oceanograficos, Mexico
CENDOC	Centro Nacional de Datos Oceanograficos de Chile
CNODC	China National Oceanographic Data Center
CNRDO	Centro Nazionale Raccolta Dati Oceanografici, Italy
DOD	Deutsches Ozeanographisches Datenzentrum
ENODC	Egyptian National Oceanographic Data Center
FAOFDC	Food and Agriculture Organization of the United Nations, Fishery Data Centre
ICES	International Council for the Exploration of the Sea
IHO	International Hydrographic Organization
INODC	Indian National Oceanographic Data Center
JODC	Japan Oceanographic Data Center
KODC	Korean Oceanographic Data Center
MEDS	Marine Environmental Data Service, Canada
MIAS	Marine Information and Advisory Service, United Kingdom
NCOG	Nederlands Centrum voor Oceanografische Gegevens
NOD	Norsk Oseanografisk Datasenter
NODC	National Oceanographic Data Center, U.S.A.
PSMSL	Permanent Service for Mean Sea Level
SADCO	South African Data Centre for Oceanography

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PART II
CATALOGUE

EXPLANATION OF WDC-A, OCEANOGRAPHY, DATA INFORMATION SHEET

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Country/Catalogue Number -- The series number and two digit number of the contributing country, as well as the identifying number for the data information, are given in this column. Details of the catalogue numbering system are given in the section How to Use the Change Notice to the Catalogue of Data. The numbers corresponding to the country and institution portions of the Catalogue Number are found in the index section that lists countries and contributing institutions.

Country/Ship or Fixed Station -- The country name, as well as the names of ships are printed in capital letters; lightvessels are identified by (LV) following the name. All other names not so designated are those of shore stations and other types of fixed platforms, such as lighthouses (LH) or offshore towers; names are reported as they appear with the data.

Start Date/End Date -- The dates during which the data were gathered are given in the order of day/month/year. In some instances, depending on the nature of the project, the dates indicate the beginning and ending of a cruise or expedition, while in others the dates indicate the first and last observations. For shore and fixed stations months and years only are usually given.

Region -- The region(s) of the World Ocean where observations were gathered. The areas listed are defined in "Limits of Oceans and Seas," International Hydrographic Bureau, Special Publication No. 23, third edition, Monaco, 1953, with certain modifications as indicated in the Catalogue Indexes section.

Oceanographic Serial Stations

Number of Stations -- The number of oceanographic serial stations (also referred to as hydrographic, hydrographical, hydrological and hydrochemical stations by various authorities) at which serial measurements of temperature, salinity, and other chemical values are made, normally to depths of five meters or greater. Data to depths less than five meters are usually catalogued as Surface Observations. The single dagger symbol (†) is used to denote data obtained by electronic, in-situ, Salinity/Temperature/Depth (STD) or Conductivity/Temperature/Depth (CTD) sensors.

Physical and Chemical Data -- The types of physical and chemical data, available at serial depths as observed and as computed values, are listed using the following symbols and abbreviations:

T	-	Temperature of the water sample
Cl	-	Chlorinity
S	-	Salinity
O2	-	Dissolved oxygen content
CO ₂	-	Carbon dioxide
pH	-	Hydrogen ion concentration
Alk	-	Alkalinity
N	-	Nitrogen compounds
P	-	Phosphorous compounds
Si	-	Silicon compounds
sig-t	-	Density of the water at T & S <u>in-situ</u> and at atmospheric pressure
SVA	-	Anomaly of specific volume
TherAnom	-	Thermosteric anomaly
ΔD	-	Anomaly of dynamic heights
PE	-	Potential energy
PT	-	Potential temperature
Q	-	Q factor for transport computations
Vs	-	Speed of sound

NOTE: Chemical compounds may also be indicated by standard chemical symbols.

Sample Depths -- The depth, or range of depths, to which the predominant number of samples/casts for that particular cruise were observed. They are recorded to the nearest 100 meters, except when the observations are in water less than 100 meters in depth, in which case they are usually recorded to the nearest 10 meters.

Maximum Depth -- The actual depth of the deepest sample/cast for a particular cruise or data set and is not rounded off.

BT's -- The type and number of mechanical bathythermograph (MBT) or expendable bathythermograph (XBT) observations are indicated by:

MB	-	Analog prints of bathythermographs taken by a mechanical BT
MTb	-	Tables or listings of mechanical BT temperature readings at selected depths
XB	-	Analog prints of bathythermographs taken by an expendable BT
XTb	-	Tables or listings of expendable BT temperature readings at selected depths

DTb - Table or listings of digital BT temperature readings at selected depths

Currents -- The types and quantity of observations of surface and subsurface currents are indicated by:

Surf - Surface
Subs - Subsurface

Biological -- The types of marine biological observations made and the number of stations and/or abundance of data are indicated by any of the following categories:

Phyt - Phytoplankton
Pigm - Pigments
PrPr - Primary productivity
Zoo - Zooplankton
Nek - Nekton
Eggs - Fish eggs and/or larvae
Neus - Neuston
Pleu - Pleuston
Sest - Seston
Bent - Benthos
PeF - Pelagic fishes
DeF - Demersal fishes
Cet - Cetacea
Micr - Microbiological data
Biol - Bioluminescence
Poll - Pollution studies
Surf - Surface visual observations of birds, fishes
mammals, reptiles and discolored water
FObs - Fishery observations
C14 - Carbon
Bore - Borers and foulers

Meteorological -- The types of meteorological observations taken in conjunction with oceanographic data are indicated by:

Wd - Wind direction and speed
W - Weather
Ta - Temperature of the air, dry bulb
Tw - Temperature of the air, wet bulb
Bar - Atmospheric pressure, barometer
Cld - Clouds
Vis - Visibility
Hum - Humidity
DP - Dew point
Pre - Precipitation
SoRa - Solar radiation
Rad - Radiosonde observations

Sea Surface -- The types of sea surface observations and measurements taken are listed. In addition to the abbreviations and symbols listed for Physical and Chemical Data, the following

are also used:

- Col - Color of the water
- Tra - Transparency of the water
- Wa - Visual data on waves, including sea state
- IWa - Instrumented wave data
- Ice - Data on ice in the sea
- LP - Light penetration
- LPW - Long period wave records

Data Center Reference Number -- Data which have been processed by Automatic Data Processing (ADP) machine methods at a national, regional, or responsible oceanographic data center, usually have been assigned some type of identifying reference number by that center. The availability of data in magnetic tape or machine listing format is indicated by the initials of the data center followed by that center's reference number. For example, machine-processed oceanographic station data for Reference Number 310863 of the National Oceanographic Data Center would appear as NODC 310863. As a means of identifying those types of data that have been machine-processed and thus correspond to the Reference Number, the Diamond symbol (◊) is entered in the appropriate columns describing data that are automated under that Reference Number.

Publication number refers to the Catalogue Number from the WDC-A, Oceanography Catalogue of Accessioned Publications Supplement identifying the published report in which the referenced data appear. The absence of a number in this column indicates that the data were not received in published form.

Remarks -- Any additional information included to further describe the data. The term "(CAT. OF DATA)" or "(Change)", indicates that data for this listed cruise represent an addition to data previously received by WDC-A, Oceanography, and already described under this Catalogue Number in the Catalogue of Data (including Change Notice Nos. 1-16) or the referenced Change Notice. An asterisk (*) is placed beside each data entry which represents an addition to data catalogued previously; the total number of observations held for this cruise is shown in parentheses () beneath the data entry. Data entries preceded by a minus sign (-) and enclosed in parentheses, e.g. (-9), indicate a deletion of observations. For more extensive explanation of some cruises, the Remarks Section immediately follows the main Catalogue Section in this Change Notice.

NOTE: Track charts showing locations of oceanographic observations are not printed in the Change Notice. If a track chart is available for a particular cruise, that information will be given in the Remarks Section of this Change Notice. WDC-A will gladly provide copies of such track charts upon request.

WDC-A. OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB FIG.	TYPES OF				OBSERVATIONS				DATA CENTER REFERENCE NUMBER	REMARKS
					OCEANOGRAPHIC NO. OF STAS.	PHYS. & CHEM DATA	SERIAL SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	
102.....	AUSTRALIA.....													
102.01 2-02	SOELA	14/01/87	02/02/87	45b	25	T, S, O2, PO4, Ptotal, NO2, NO3	50-500	502			Eggs-239	Wd, Cld	T, S Wa	Cruise SO 1/87
102.06 A-24	ANRO AUSTRALIA, CANBERRA, CAPE PILLAR, COOK, DARWIN, FLINDERS, HOBART, MORESBY, PERTH	01/01/85	31/12/85	45b 48 57a 57b 61a 64					XTb-504 ø					Cruise TOGA
102.06 A-25	ANRO AUSTRALIA, ADELAIDE, AUSTRALIAN PROGRESS, DARWIN, DERWENT, CANBERRA, CAPE PILLAR, COOK, HOBART, MORESBY, PARRAMATTA, PERTH, SWAN, SYDNEY, TORRENS	01/01/86	31/12/86	45b 48 49 56 57a 57b 61a					XTb- 1001 ø					Cruise TOGA
104.....	BRAZIL.....													
104.02 B-09	PROFESSOR W. BESNARD	06/04/72	23/04/72	32b	55	(T, S, sig-t, SVA, AD, Vs, O2, Ptotal, NO2) ø	15-400	1000						NODC 141037
106.....	CANADA.....													
106.01 B-29	OSHAWA	04/07/61	12/07/61	57b	7	(T, S, sig-t, SVA, AD, Vs) ø	25-90, 2760-3000	3000						NODC 181058
106.01 B-30	OSHAWA	23/01/57	04/03/57	57b	67	(T, S, sig-t, SVA, AD, Vs) ø	100-1970	1987						NODC 180564
106.04 H-01	Ship not identified	04/05/51	12/05/51	57b	30	(T, S, sig-t, SVA, AD, Vs) ø	50-900	1000						NODC 180420
106.04 I-01	G. B. REED	08/06/85	03/10/85	57b					XTb-47 ø					NODC TOGA PACIFIC DATA BASE
106.09 C-21	BAFFIN	03/10/85	15/10/85	14A 15 15A	65 †	(T, S, sig-t, SVA, AD, Vs) ø	70-1700	1806						NODC 188376
106.09 F-23	HUDSON	12/04/82	28/04/82	23a 23b	78 †	T, S, sig-t, AD, O2, PO4, NO3, SI, PT	150-4650	4928						Publication 06.09-153
106.09 F-24	HUDSON	31/03/74	13/05/74	24	1015 †	(T, S, sig-t, SVA, AD) ø	10-470	474					(T, S, sig-t, AD) -10 ø ††	NODC 188309

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ø INDICATES MACHINE PROCESSED DATA THAT CORRESPONDS TO THE DATA CENTER REFERENCE NUMBER.

†† FOR ADDITIONAL DESCRIPTIVE REMARKS PLEASE SEE THE REMARKS SECTION.

WDC-A. OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	TYPES OF OBSERVATIONS					DATA CENTER REFERENCE NUMBER	REMARKS		
					OCEANOGRAPHIC	SERIAL STATIONS	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL			METEORO- LOGICAL	SEA SURFACE
					NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH					
106.09 F-25	HUDSON	23/04/76	04/05/76	24	489 †	(T, S, sig-t, SVA, AD, Vs) 0	5-250	296			(T, S, sig-t, Vs) -90 0 ††	NODC 188367, 188368	
106.09 F-26	HUDSON	01/06/85	23/06/85	23a	197 †	(T, S, sig-t, SVA, AD, Vs) 0	1500-2000	2156				NODC 188374	
106.09 I-43	DAWSON	14/11/74	26/11/74	23b	57 †	(T, S, sig-t, SVA, AD, Vs) 0	35-150	239				NODC 188303	
106.09 AA-16	GADUS ATLANTICA	14/05/81	31/05/81	23b	101 †	(T, S, sig-t, SVA, AD, Vs) 0	50-1000	1012				NODC 188362	
106.09 EE-01	Alrcraft (Helicopter)	04/03/88	24/03/88	15A	24 †	T, S, sig-t	150-250	250				Publication 06.09-152	
106.10 H-07	WILFRED TEMPLEMAN	02/08/87	15/08/87	15A 23b	60 †	(T, S, sig-t, SVA, AD, Vs) 0	100-990	998				NODC 188307	
106.10 H-08	WILFRED TEMPLEMAN	02/08/88	15/08/88	15A 23b	97 †	(T, S, sig-t, SVA, AD, Vs) 0	100-1000	1014				NODC 188365	
106.13 E-01	CEDARWOOD	28/07/50	26/08/50	57b	88	(T, S, sig-t, SVA, AD, Vs) 0	60-1097	1097				NODC 180423	
106.13 E-02	CEDARWOOD	01/06/51	14/08/51	57b	52	(T, S, sig-t, SVA, AD, Vs) 0	50-1200	1200				NODC 180296	
106.13 F-01	ST. THERESE	27/07/55	28/08/55	57b	72	(T, S, sig-t, SVA, AD, Vs) 0	975-1200	1200				NODC 180540	
106.13 G-01	NEW GLASGOW	31/07/56	02/09/56	57b	84	(T, S, sig-t, SVA, AD, Vs) 0	630-1980	1991				NODC 180549	Cruise NP-56
106.19 F-07	ENDEAVOUR	18/03/69	30/04/69	57a 57b	25	(T, S, sig-t, SVA, AD, Vs) 0	150-200	200				NODC 181057	
106.22 X-01	SIR JOHN FRANKLIN	25/08/89	03/09/89	13	60 †	T, S, sig-t, AD, Vs, O2, PO4, NO3, Si	50-1500	3000			Pigm-7	Publication 06.17-167	Cruise 89-70
107.....	CHILE.....												
107.01 B-12	YELCHO	08/09/67	29/09/67	61b	104	(T, S, sig-t, SVA, AD, Vs, O2) 0	50-2300	2439				NODC 200012	Cruise OM6

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WDC-A. OCEANOGRAPHY DATA INFORMATION

				TYPES OF		OBSERVATIONS									
COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	OCEANOGRAPHIC NO. OF STAS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER	REMARKS
110.....	ECUADOR.....														
110.03 A-01	BUCCANEER, ISLA FLOREANA	25/01/85	30/12/85	57a 57b 61b										NODC TOGA PACIFIC DATA BASE	Cruise TOGA
110.03 A-02	BUCCANEER, ISLA FLOREANA	03/01/86	28/12/86	57a 57b 61b										NODC TOGA PACIFIC DATA BASE	Cruise TOGA
113.....	FRANCE.....														
1113.03 D-22	CORIOLIS	05/07/78	11/08/78	61a	39	(T, S, SVA, sig-t, SVA, AD, Vs, O2, SIO4) 0	560-1177	1179						NODC 358349	Cruise HYDROTHON
1113.03 D-23	CORIOLIS	10/12/82	18/12/82	64	100	(T, S, SVA, sig-t, SVA, AD, Vs, NO2) 0	150-500	500						NODC 358363	Cruise PREFIL 3
1113.03 D-24	CORIOLIS	29/01/83	25/04/83	64	217	(T, S, SVA, sig-t, SVA, AD, Vs, NO2) 0	200-500	935						NODC 358364, 358365	Cruises PREFIL 4 & 5 Period: 29/1-6/2/83 and 16-25/4/83
1113.03 D-25	CORIOLIS	10/09/83	19/11/83	64	233	(T, S, SVA, sig-t, SVA, AD, Vs, O2, NO2) 0	200-250	1000						NODC 358366, 358367	Cruise PREFIL 6 Period: 10-19/9/83 and 11-19/11/83
1113.03 D-26	CORIOLIS	31/08/84	08/09/84	64	113	(T, S, SVA, sig-t, SVA, AD, Vs, NO2) 0	200-250	250						NODC 358372	Cruise PREFIL 10
1113.03 D-27	CORIOLIS	29/06/77	17/07/77	61a 64	40	(T, S, SVA, sig-t, SVA, AD, Vs, O2) 0	300-1170	1179						NODC 358440	
1113.03 E-03	LE NOROIT	07/08/75	15/09/75	57b 61a	119	(T, S, SVA, sig-t, SVA, AD, Vs) 0	385-550	550						NODC 358429	
1113.03 H-15	CAPRICORNE	03/11/71	01/12/71	23a 32a	43	(T, S, SVA, sig-t, SVA, AD, Vs, O2) 0	150-1015	1040						NODC 358441	
1113.07 H-02	MARION DUFRESNE	22/02/75	16/03/75	45c	89	(T, S, SVA, sig-t, SVA, AD, Vs, O2, SIO4) 0	20-350	1205						NODC 358431	
1113.07 H-03	MARION DUFRESNE	26/09/82	08/10/82	37 38	85	(T, S, SVA, sig-t, SVA, AD, Vs) 0	20-1600	2214						NODC 358397	
1113.07 H-04	MARION DUFRESNE	25/05/79	07/06/79	39 45a	31 †	(T, S, SVA, sig-t, SVA, AD, Vs) 0	1000-2000	3354						NODC 359168	Cruise 18, FOY

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†† FOR ADDITIONAL DESCRIPTIVE REMARKS PLEASE SEE THE REMARKS SECTION.

[illegible]

WIND AND TEMPERATURE DATA

STATION	DATE	TIME	WIND DIRECTION	WIND SPEED	TEMPERATURE	HUMIDITY	PRESSURE	SEA STATE	REMARKS
101	1960	0100	090	10	15.0	85	1010.0	3	Cloudy
101	1960	0200	090	10	15.0	85	1010.0	3	Cloudy
101	1960	0300	090	10	15.0	85	1010.0	3	Cloudy
101	1960	0400	090	10	15.0	85	1010.0	3	Cloudy
101	1960	0500	090	10	15.0	85	1010.0	3	Cloudy
101	1960	0600	090	10	15.0	85	1010.0	3	Cloudy
101	1960	0700	090	10	15.0	85	1010.0	3	Cloudy
101	1960	0800	090	10	15.0	85	1010.0	3	Cloudy
101	1960	0900	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1000	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1100	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1200	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1300	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1400	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1500	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1600	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1700	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1800	090	10	15.0	85	1010.0	3	Cloudy
101	1960	1900	090	10	15.0	85	1010.0	3	Cloudy
101	1960	2000	090	10	15.0	85	1010.0	3	Cloudy
101	1960	2100	090	10	15.0	85	1010.0	3	Cloudy
101	1960	2200	090	10	15.0	85	1010.0	3	Cloudy
101	1960	2300	090	10	15.0	85	1010.0	3	Cloudy

WIND AND TEMPERATURE DATA

WDC-A, OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	TYPES OF OBSERVATIONS					BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATACENTER REFERENCE NUMBER	REMARKS
					OCEANOGRAPHIC NO. OF STATS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	STATIONS MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS				
123.....	ITALY.....													
123.04 F-01	MARIA PAOLINA	30/11/76	09/12/76	28Ae	24 †	(T, S, sig-t, SVA, AD, Vs) 0	1285-1500	1502					NODC 480857	
123.04 F-02	MARIA PAOLINA	28/03/77	29/04/77	28Ae	30 †	(T, S, sig-t, SVA, AD, Vs) 0	25-990	1189					NODC 480858, 480859	
123.04 F-03	MARIA PAOLINA	17/04/78	23/05/78	28Ae	26 †	(T, S, sig-t, SVA, AD, Vs) 0	13-167	1747					NODC 480860 thru 480862	
123.06 C-01	ANM. MAGNAGHI	23/06/87	28/06/87	28B							(T, S, PO4, NO2, NO3, NH3, SiO4) -18		Publication 23.09-022	Cruise ISOLE PELAGIE
124.....	JAPAN.....													
124.01 B-85	RYOFU MARU	17/01/88	01/11/88	50 56 57a	196	T, S, SVA, AD, O2, PO4, NO2, NO3, pH, Si, Heavy Metal, Hydrocarbon	30-4300	4898	MTD-210	Surf-GEK -142	Phyt-111 Zoo-111 Pigm-136	S Col, Tra	Publication 24.07-079	Cruise KER
124.01 B-86	RYOFU MARU	18/09/88	08/12/88	56 57a					MTD-55	Surf-GEK -55		S	Publication 24.07-079	
124.01 F-29	KEIFU MARU	23/01/88	26/11/88	50 52 56 57a	22	T, S, SVA, AD, O2, PO4, NO2, NO3	75-1000	1251	MTD-150	Surf-GEK -121		S Col, Tra	Publication 24.07-079	
124.02 B-60	OSHO MARU	09/11/88	03/09/89	50 52 57a 57b 55 56	160 †	T, S, sig-t, TherAnom, SVA, AD, O2, PO4, NO2, NO3, Si	40-1500	2000			Phyt-128 Eggs-77 FObS-83	T Wa, Col, Tra	Publication 24.04-043	Cruises 26, 27, 28, 29
124.02 C-13	HOKUSEI MARU	20/01/89	26/10/89	52 57a	129 †	T, S, sig-t, SVA, TherAnom, AD, O2, SiO2	300-2000	2000	XTD-9		Wd, W, Ta, Tw, Bar	Wa, Col, Tra	Publication 24.04-043	Cruises 41, 42, 43, 44
124.08 D-76	KOFU MARU	09/02/88	31/10/88	52 54 57a	171	T, S, TherAnom, AD, O2, PO4, NO2, NO3, NH3, pH, Heavy Metal, Hydrocarbon	30-4000	4005	MTD-342	Surf-GEK -339	Phyt-61 Zoo-52 Pigm-54	S Col, Tra	Publication 24.07-079	Cruise KER

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WDC-A. OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IBB REQ.	TYPES OF OBSERVATIONS				BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER	REMARKS
					NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH							
124.08 D-77	KOFU MARU	01/08/88	02/08/88	57a					MTb-11	Surf-GEK -11			S	Publication 24.07-079	
124.09 A-92	SHUMPU MARU	03/02/88	03/10/88	53 56 57a	104	T, S, TherAnom, AD, O2, PO4, NO2, NO3, pH, Heavy Metal Hydrocarbon	15-1500	1639	MTb-283	Surf-GEK -316	Phyc-38 Zoo-37 Pigm-72		S Col, Tra	Publication 24.07-079	Cruise KER
124.09 A-93	SHUMPU MARU	30/08/88	23/11/88	50 56					MTb-57	Surf-GEK -75			S	Publication 24.07-079	
124.10 D-80	CHOFU MARU	13/01/88	04/10/88	50 51 56	413	T, S, TherAnom, AD, O2, PO4, NO2, NO3, pH, Heavy Metal Hydrocarbon	30-5000	5108	MTb-60	Surf-GEK -286	Phyc-36 Zoo-37 Pigm-151		T, S Col, Tra	Publication 24.07-079	Cruise KER
124.10 D-81	CHOFU MARU	20/10/88	25/10/88	52	20	T, S, TherAnom, AD, O2, PO4, NO2, NO3	75-1200	1200		Surf-GEK -20			T, S	Publication 24.07-079	
124.11 D-67	SEIFU MARU	26/01/88	31/10/88	52 57a	245	T, S, TherAnom, AD, O2, PO4, NO2, NO3, pH, Heavy Metal Hydrocarbon	30-1980	2105	MTb-128	Surf-GEK -396	Phyc-42 Zoo-41 Pigm-94		T, S Col, Tra	Publication 24.07-079	Cruise KER
124.11 D-68	SEIFU MARU	25/04/88	01/12/88	52					MTb-31	Surf-GEK -79			T, S	Publication 24.07-079	
124.13 B-24	MEIYO, AWAZI, DAISETU, ESAN, ETIZEN, IWAKI, KAIYO, KOSIKI, KUNIGAMI, KUZURU, MATUSIMA, NOTO, RISIRI, SATUWA, SINANO, TENYO, TYORAI, WAKASA, YAHIKO, YANIKO, YUBARI, ZAO	10/01/87	25/12/87	50 52 54 56 57a					XTb- 1,108	Surf-GEK -1,266		Wd, Ta	T	Publication 24.10-148	
124.13 E-68	TAKUYO	12/02/88	13/03/88	50 56 57a 61a	57 †	T, S, sig-t, SVa, TherAnom, AD, Vs, O2, P, Si, pH, Heavy Metal Hydrocarbon	100-4500	4513	XTb-125	Surf-779		Wd, W, Ta, Tw, Cld, Bar, Vis	Wa	Publication 24.10-049	Cruise 5, WESTPAC
124.13 GGG-19	SHOYO	11/05/87	21/12/87	50 52 56 57a	200 †	T, S, sig-t, SVa, TherAnom, AD, Vs	30-4200	4500	XTb-330			Wd, W, Ta, Tw, Cld, Bar, Vis	Wa	Publication 24.10-048	Period: 11-28/5/87 and 26/8-21/12/87 145 CTD stations

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WDC-A, OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FLEET STATION	START DATE	END DATE	IHB REG.	TYPES OF OBSERVATIONS					BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATACENTER REFERENCE NUMBER	REMARKS
					NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS				
124.16 A-31	KOYO MARU	21/09/89	28/02/90	56 57a 57b 61a	96 †	T, S	200-1000	1000	XTB-53		Wd, W, Ta, Bar	T Wa, Col, Tra	Publication 24.11-047	
124.16 B-11	TENYO MARU	19/04/89	12/07/89	45b 50 56	26 †	T, S	450-800	1006	XTB-10		Wd, W, Ta, Bar	(T, S)-8 T Wa	Publication 24.11-047	5 CTD stations
124.20 B-03	OYASHIO MARU	09/04/86	18/03/87	52 57a	193 †	T, S	200-300	300	MTB-37 XTB-46		Wd, W, Ta, Bar	Col, Tra	Publication 24.06-063	16 CTD stations
124.20 C-03	KINSEI MARU	08/04/86	12/03/87	52	206 †	T, S	30-800	800			Wd, W, Ta, Bar	Col, Tra	Publication 24.06-063	204 CTD stations
124.20 D-02	SEITOKU MARU	29/05/86	24/09/86	57b	112 †	T, S	50-600	600	MTB-44		W, Ta, Bar		Publication 24.06-063	
124.20 E-03	HAKUSHIN MARU	08/04/86	25/02/87	57a	703 †	T, S	30-500	500	XTB-179		Wd, W, Ta, Bar	S Tra	Publication 24.06-063	627 CTD stations
124.20 G-03	HOKUYO MARU	08/04/86	24/03/87	52 54	4 †	T, S, O ₂ , Si	500	503			Wd, W, Ta, Tw, Cld, Bar	Wa	Publication 24.13-070	Cruise KH-88-2, OKLET Expedition
124.24 B-50	HAKUHO MARU	16/04/88	07/05/88	56	44 †	T, S, sig-t, SVA, AD, Vs, O ₂ , PO ₄ , NO ₂ , NO ₃ , NH ₄	130-2500	5750					Publication 24.13-071	Cruise KH-88-4, WESTPAC 19 CTD stations
124.24 B-51	HAKUHO MARU	24/09/88	30/10/88	50 52 56 57a									Publication 24.22-026 24.22-029 *	Cruise JARE-23, BIOMASS (Change 37)
124.31 A-01	Shore-Based Party	22/01/82	28/01/83	45c SO	15 †	T, S, sig-t, AD, O ₂ , PO ₄ , NO ₂ , NO ₃ , NH ₄ , SiO ₃ , pH, Heavy Metal Hydrocarbon	800-3300	3382	XTB-169				Publication 24.22-028 *	Cruise JARE-24, BIOMASS (Change 41)
124.31 A-02	Shore-Based Party	16/02/83	13/01/84	45c SO									Publication 24.22-027	Cruise JARE-29 10 CTD stations
124.31 B-05	SHIRASE	14/11/87	18/03/88	45b 45d 61a 63 SO							Wd, W, Ta, Bar, Vis, Hum	T, S, O ₂ , PO ₄ , NO ₂ , NO ₃ , NH ₄ , SiO ₃ , pH Wa		
125.....	MEXICO.....													
125.03 C-01	ALTAIR	24/01/86	03/02/86	26	45	(T, S, sig-t, SVA, AD, Vs, O ₂ , PO ₄ , SiO ₄) Ø	20-150	151					NODC 570043	

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						NO OF STAS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE			
126.....	B-01	NETHERLANDS.....															
126.02	B-01	NEDLLOYD KEMBLA, NEDLLOYD KIMBERLY, NEDLLOYD KINGSTON	01/01/85	31/12/85	48 57a 57b 61a 65											NODC TOGA PACIFIC DATA BASE	Cruise TOGA
126.02	B-02	NEDLLOYD KATWIJK, NEDLLOYD KEMBLA, NEDLLOYD KIMBERLY, NEDLLOYD KINGSTON	16/01/86	31/12/86	48 56 57a 57b 61a 64 65											NODC TOGA PACIFIC DATA BASE	Cruise TOGA
127.....		NEW ZEALAND.....															
127.02	A-01	SOUTHLAND, CANTERBURY, WAIKATO	20/04/85	18/10/85	57b 61a 64 65											NODC TOGA PACIFIC DATA BASE	Cruise TOGA
127.02	A-02	CANTERBURY	11/06/86	12/07/86	61a 64											NODC TOGA PACIFIC DATA BASE	Cruise TOGA
130.....		PERU.....															
130.02	A-01	CARRILLO, SNP-1	13/03/85	04/12/85	61b											NODC TOGA PACIFIC DATA BASE	Cruise TOGA
130.02	A-02	CARRILLO, SNP-1	26/02/86	22/08/86	61b											NODC TOGA PACIFIC DATA BASE	Cruise TOGA
135.....		SWEDEN.....															
135.01	I-01	PARALLA	12/01/85	13/06/85	57b 61a											NODC TOGA PACIFIC DATA BASE	Cruise TOGA
135.01	J-01	ELGAREN	26/04/86	25/12/86	57a 57b 61a 64											NODC TOGA PACIFIC DATA BASE	Cruise TOGA
136.....		SOUTH AFRICA.....															
136.01	C-04	MEIRING NAUDE	17/02/69	28/02/69	45a	148	(T, S, SVA, sig-t, SVA, AD, Vs, PO4, S104) 0	90-100	402							NODC 910086	Cruise 4
136.01	C-05	MEIRING NAUDE	12/02/73	23/03/73	45a	122	(T, S, SVA, sig-t, SVA, AD, Vs, PO4, NO3, S104) 0	100-500	503					T-1 0		NODC 910085, 910092	Cruises 3 & 7

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WDC-A. OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REQ.	TYPES OF OBSERVATIONS					BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER	REMARKS
					OCEANOGRAPHIC NO. OF STAS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	MAX. DEPTH	STATIONS							
136.01 C-06	MEIRING NAUDE	06/02/74	08/03/74	45a	135	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SIO4) 0	100-500	505							NODC 910084, 910091	Cruises 2 & 6
136.01 C-07	MEIRING NAUDE	03/02/75	25/04/75	45a	118	(T, S, sig-t, SVA, AD, Vs, PO4, NO2, SIO4) 0	10-500	507							NODC 910083, 910090, 910099	Cruises 3, 5, 6
136.01 C-08	MEIRING NAUDE	01/03/77	20/03/77	45a	40	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SIO4) 0	20-380, 1000	1029							NODC 910087, 910088	Cruises 7 & 9
136.01 C-09	MEIRING NAUDE	21/03/79	23/03/79	45a	11	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SIO4) 0	10-200	218							NODC 910089	Cruise 6
136.01 C-10	MEIRING NAUDE	21/01/76	14/04/76	45a	25	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SIO4) 0	20-1000	1002							NODC 910079, 910097	Cruises 1 & 7
136.01 C-11	MEIRING NAUDE	18/01/77	27/04/77	45a	157	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SIO4) 0	20-1000	1028							NODC 910080, 910093, 910094, 910096	Cruises 2, 3, 10, 13
136.01 C-12	MEIRING NAUDE	25/01/78	29/06/78	45a	54	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SIO4) 0	10-1700	1788							NODC 910081, 910095, 910098, 910107	Cruises 1, 8, 10, 14
136.01 C-13	MEIRING NAUDE	22/04/69	20/06/69	45a	195	(T, S, sig-t, SVA, AD, Vs) 0	100-110	111							NODC 910102, 910110	Cruise 14
136.01 C-14	MEIRING NAUDE	24/04/73	27/07/73	45a	203	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SIO4) 0	150-500	504							NODC 910101, 910109, 910113	Cruises 11, 13, 15
136.01 C-15	MEIRING NAUDE	09/04/74	19/06/74	45a	54	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SIO4) 0	40-500	506							NODC 910100, 910103, 910108	Cruises 11, 15, 18
136.01 C-16	MEIRING NAUDE	08/06/76	11/06/76	45a	24	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SIO4) 0	25-380	380							NODC 910106	Cruise 12

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COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	TYPES OF STATIONS				OBSERVATIONS					DATA CENTER REFERENCE NUMBER	REMARKS
					NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE		
136.01 C-17	MEIRING NAUDE	21/06/77	24/06/77	45a	18	(T, S, sig-t, SVA, AD, Vs, PO4, NO3, SiO4) 0	25-1000	1000						NOOC 910105	Cruise 19
136.01 I-01	FRAAY	09/05/67	25/05/67	45a	143	(T, S, sig-t, SVA, AD, Vs) 0	200-500	512						NOOC 910104	Cruise 2
136.04 A-01	FRANK HARVEY	19/01/66	28/01/66	45a	63	(T, S, sig-t, SVA, AD, Vs) 0	90-975	975						NOOC 910082	Cruise 1
137.....	U.S.S.R.....														
137.02 E-20	VIKTOR BUGAEV	30/08/74	19/09/74	57b 61b	153	(T, S, sig-t, SVA, AD, Vs, O2) 0	500	500						NOOC 907201	
137.02 E-21	VIKTOR BUGAEV	27/07/74	15/08/74	57b	148	(T, S, sig-t, SVA, AD, Vs, O2) 0	500	500						NOOC 907200	
137.02 E-22	VIKTOR BUGAEV	27/06/74	16/07/74	57b	133	(T, S, sig-t, SVA, AD, Vs, O2) 0	500	500						NOOC 907205	
137.02 F-01	MERIDIAN	14/02/85	25/11/85	57a 61a					XTB-123 0					NOOC TOGA PACIFIC OATA BASE	Cruise TOGA
137.02 F-02	MERIDIAN	07/03/86	10/03/86	57a 61a					XTB-15 0					NOOC TOGA PACIFIC OATA BASE	Cruise TOGA
137.06 H-17	AKADEMIK KOROLEV	13/09/81	29/11/81	27 57a 57b	510	(T, S, sig-t) 0	20-530	1514						NOOC 907167	
137.06 Y-02	BOGUSLAV	13/04/85	07/06/85	23b	203	(T, S, sig-t, SVA, AD, Vs) 0	65-1000	1035						NOOC 907171	
137.06 Z-01	LENSK	06/06/84	08/06/84	23b	13	(T, S, sig-t, SVA, AD, Vs) 0	1000	1000						NOOC 907188	Cruise 18
137.11 R-06	SULOY	16/04/83	04/08/83	23b	316	(T, S, sig-t, SVA, AD, Vs) 0	45-1000	1200						NOOC 907175	
138.....	UNITED KINGDOM.....														
138.02 K-05	ACT 3, ACT 4, ACT 6, OILKARA, MANCHESTER	01/01/85	31/12/85	57b 61a 61b 64 65 66					XTB-689 0					NOOC TOGA PACIFIC OATA BASE	Cruise TOGA

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COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REQ.	TYPES OF OBSERVATIONS				BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER	REMARKS
					OCEANOGRAPHIC	SERIAL	STATIONS	MAX.							
					NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	DEPTH							
138.02	K-06 ACT 3, ACT 4, ACT 6, DILKARA, MANCHESTER	12/01/86	27/12/86	57b 61a 61b 64 65 66					XTD-686 0					NODC TOGA PACIFIC DATA BASE	Cruise TOGA
138.05	B-19 DISCOVERY	19/06/83	08/07/83	23a	6 * † (26)	0 *								NODC 749144	Cruise 138 (Change 40)
138.05	B-25 DISCOVERY	21/05/88	08/06/88	23a	49 †	T, S, sig-t, SVA, AD, Vs, O2, PT	1100-4000	4200						Publication 38.14-360	Cruise 174
138.05	B-26 DISCOVERY	22/04/87	05/05/87	32a	117 †	(T, S, sig-t, SVA, AD, Vs, O2, PO4, NO3, SIO4) 0	100-5000	5103						NODC 741535, 749181	Cruise 165B 65 CTD stations
138.05	B-27 DISCOVERY	16/04/82	22/04/82	23a	97 †	(T, S, sig-t, SVA, AD, Vs) 0	500-550	600						NODC 749146	Cruise 127
138.05	C-05 CIROLANA	24/09/79	15/10/79	23a	61 †	(T, S, sig-t, SVA, AD, Vs) 0	1990-4000	4797						NODC 741531	
138.05	E-04 SHACKLETON	28/10/81	12/11/81	23a	140 †	(T, S, sig-t, SVA, AD, Vs) 0	450-600	601						NODC 749145	Cruise 2/81
138.10	B-03 CHARLES DARWIN	20/12/86	17/01/87	39 40 45a	109 * † (225)									NODC 749178	Cruise MASAI I 116 CTD stations (Change 45)
138.10	B-04 CHARLES DARWIN	18/07/87	14/08/87	39 45a	78 * † (198)									NODC 749179	Cruise MASAI II 82 CTD stations (Change 45)
138.10	B-05 CHARLES DARWIN	13/11/87	16/12/87	45a 45b	111 †	(T, S, sig-t, SVA, AD, Vs) 0	800-5300	5879						NODC 749180	Cruise 29
138.14	A-01 PRINCE MADOG	03/05/77	03/05/77	19	11 †	(T, S, sig-t, SVA, AD, Vs) 0	14-40	41						NODC 749147	Cruise DW3
138.14	A-02 PRINCE MADOG	13/02/78	11/10/78	19	435 †	(T, S, sig-t, SVA, AD, Vs) 0	12-60	70						NODC 749148 thru 749157	Cruises DW6 thru DW15
138.14	A-03 PRINCE MADOG	11/01/79	27/11/79	19	153 †	(T, S, sig-t, SVA, AD, Vs) 0	16-100	100						NODC 749158 thru 749164	Cruises DW16, ISIS5 thru ISIS10
138.14	A-04 PRINCE MADOG	06/04/81	06/10/81	19	124 †	(T, S, sig-t, SVA, AD, Vs) 0	20-120	140						NODC 749165 thru 749171, 749173, 749177	Cruises ISIS15 thru ISIS20, ISIS22, ISIS28, UCES22

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					NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE		
139.01	UNITED STATES.....														
139.01	C-45 ATLANTIS II	06/08/80	04/09/80	45c SO	98 †	(T, S, sig-t, SVA, AD, Vs) 0	500-5500	5683						NOOC 319707	Cruise 107, Leg 10, ISOS
139.01	I-15 KNORR	11/06/77	12/07/77	23b	28 * (52)	0 *								NOOC 319834, 319835 *	Cruise 66, Legs 2 & 3, POLYMODE 28 CTD stations (Change 32)
139.01	I-27 KNORR	02/12/82	03/01/83	23b	37 †	(T, S, sig-t, SVA, AD, Vs) 0	1180-4700	5276						NOOC 319849, 319850	Cruise 235
139.01	I-28 KNORR	18/09/78	21/11/78	61a SO	130 †	(T, S, sig-t, SVA, AD, Vs) 0	400-3000	3928						NOOC 319705, 319706	Cruise 73, Legs 9, 10 & 11, ISOS
139.01	I-29 KNORR	21/04/88	27/07/88	30	210 †	(T, S, sig-t, SVA, AD, Vs) 0	30-1980	1980						NOOC 319874	Cruises 1 thru 5, Black Sea Project
139.01	I-30 KNORR	20/04/82	27/06/82	23b	74 †	(T, S, sig-t, SVA, AD, Vs) 0	30-3530	4121						NOOC 319751, 319752	Cruises 93 & 95
139.01	I-31 KNORR	03/02/83	18/02/83	23a 32b	34 †	(T, S, sig-t, SVA, AD, Vs) 0	2300-5300	5494						NOOC 319853	Tropical Atlantic Transient Tracers
139.01	L-07 OCEANUS	19/01/83	17/05/83	23a 23b 32a 32b	26 * (342)									NOOC 323075	Cruise 133, Legs 2 & 7 222 STD stations (Change 43)
139.01	L-09 OCEANUS	11/03/83	01/04/83	32a 32b	163 †	(T, S, sig-t, SVA, AD, Vs, O2, PO4, NO2, NO3, SiO4) 0	1550-5650	5722						NOOC 323102, 329588	Cruise 133, Leg 5 81 CTD stations
139.01	L-10 OCEANUS	15/06/83	11/07/83	23b	76 †	(T, S, sig-t, SVA, AD, Vs) 0								NOOC 329621	Cruise 134
139.01	L-11 OCEANUS	08/08/77	21/08/77	23b	31 †	(T, S, sig-t, SVA, AD, Vs) 0	3300-5299	5299						NOOC 329592	Cruise 31
139.01	L-12 OCEANUS	28/09/78	22/10/78	23a 23b	35 †	(T, S, sig-t, SVA, AD, Vs) 0	900-2760	2767						NOOC 329593	Cruise 52
139.01	L-13 OCEANUS	20/07/79	31/07/79	23b	10 †	(T, S, sig-t, SVA, AD, Vs) 0	4900-5280	5299						NOOC 329594	Cruise 66
139.01	L-14 OCEANUS	30/01/82	04/02/82	23b	41 †	(T, S, sig-t, SVA, AD, Vs) 0	70-490	493						NOOC 329506	

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WDC-A, OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	OCEANOGRAPHIC TYPES OF OBSERVATIONS				BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER	REMARKS
					NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH							
139.03 D-04	SERRANO	03/03/49	30/03/49	57b	33	(T, S, sig-t, SVA, AD, Vs) 0	320-1245	1338						NODC 310101	Region: OWS "p"
139.03 EE-02	WILKES	06/04/79	24/04/79	45a 45b (80)	40 †									NODC 319977	Cruise 907, FOY 40 CTD stations (Change 38)
139.03 II-01	BARTLETT	01/08/72	16/09/72	57a 57b	35	(T, S, sig-t, SVA, AD, Vs) 0	1500-4600	4930						NODC 318308	
139.04 8-26	T. G. THOMPSON	28/02/70	11/07/70	28A 288 57b	81	(T, S, sig-t, SVA, AD, Vs) 0	50-225	2502						NODC 311868	
139.04 8-27	T. G. THOMPSON	18/06/85	15/07/85	57a 61a 65 66	253 †	(T, S, sig-t, SVA, AD, Vs, O2, PO4, NO2, NO3, SiO4) 0	500-5600	6240						NODC 313506, 319933	127 CTD stations
139.04 8-28	T. G. THOMPSON	25/05/82	05/06/82	57a	27 †	(T, S, sig-t, SVA, AD, Vs) 0	1000-5800	5861						NODC 319934	Cruise TTI67
139.04 B-29	T. G. THOMPSON	03/06/87	05/10/87	57b	152 †	(T, S, sig-t, SVA, AD, Vs) 0	100-590	595						NODC 319862 thru 319864	Cruises 211 & 216, SUPER 3 & 4 (Subarctic Pacific Ecosystems Research Project) Period: 3-25/6/87 and 12/9-5/10/87
139.04 8-30	T. G. THOMPSON	04/05/88	05/09/88	57b	204 †	(T, S, sig-t, SVA, AD, Vs) 0	100-590	595						NODC 319865, 319866	Cruises 220 & 223, SUPER 5 & 6 (Subarctic Pacific Ecosystems Research Project) Period: 4-30/5/88 and 4/8-5/9/88
139.04 8-31	T. G. THOMPSON	14/11/83	04/12/83	57a	28 †	(T, S, sig-t, SVA, AD, Vs) 0	4700-6000	6072						NODC 319937	Cruise TTI78
139.05 C-05	ENDEAVOR	03/05/86	18/05/86	23a	101 †	(T, S, sig-t, SVA, AD, Vs) 0	300, 2700-3000	3534						NODC 329623	Cruise 143
139.05 C-06	ENDEAVOR	19/04/82	25/08/82	23b	179 †	(T, S, sig-t, SVA, AD, Vs) 0	1500-4300	4330						NODC 329533 thru 329535	Cruises 83, 86 & 88
139.05 C-07	ENDEAVOR	25/09/82	13/10/82	23b	37 †	(T, S, sig-t, SVA, AD, Vs) 0	2170-4900	5110						NODC 329540	Cruise 90
139.05 C-08	ENDEAVOR	06/02/86	07/03/86	23b	225 †	(T, S, sig-t, SVA, AD, Vs) 0	300-1200, 5200-5300	5301						NODC 329631	Cruise 141

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WDC-A. OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FICED STATION	START DATE	END DATE	IHB REG.	TYPES OF OBSERVATIONS					BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER	REMARKS
					OCEANOGRAPHIC NO. OF STAS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	STATIONS MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS				
139.07 H-05	GYRE	01/10/90	15/10/90	26	7	(T, S, SVA, AD, Vs, OZ, PO4, NO2, NO3, SiO4) Ø	200-1200	2289				S-8	NODC 323103	
139.07 H-06	GYRE	19/02/90	23/02/90	26	13 †	(T, S, SVA, sig-t, SVR, AD, Vs) Ø	10-50	500					NODC 329620	
139.07 H-07	GYRE	01/06/81	03/06/81	23b	20 †	(T, S, SVA, sig-t, SVR, AD, Vs) Ø	60-120	140					NODC 329595	Cruise 81-G-9 Region: Gulf of Maine
139.07 H-08	GYRE	19/06/82	30/06/82	23b	120 †	(T, S, SVA, sig-t, SVR, AD, Vs) Ø	30-225	225					NODC 329596	Cruise 82-G-7 Region: Gulf of Maine
139.07 H-09	GYRE	03/06/83	15/06/83	23b	143 †	(T, S, SVA, sig-t, SVR, AD, Vs) Ø	40-225	225					NODC 329597	Cruise 83-G-6 Region: Gulf of Maine
139.08 H-15	ALEXANDER AGASSIZ	06/01/76	10/05/76	57b	4 * (99)									Cruises CalCOFI 7601, 7602, 7603, 7604 66 STD stations (Change 42)
139.08 N-15	THOMAS WASHINGTON	02/03/71	14/10/71	57b 61a	93 †	T, S, sig-t, TherAnom, AD, OZ, PO4, NO2, SiO3	400-1500	2979		pigm-64 PrPr-5 Zoo-26	Wd, W, Ta, Tw, Cld, Bar	Wa	Publication 39.01-316	Cruise ARIES, Legs III & IX Period: 2-21/3/71 and 23/9-14/10/71 71 STD stations
139.08 N-16	THOMAS WASHINGTON	20/02/85	26/03/85	32a 45a	92 †	(T, S, SVA, sig-t, SVR, AD, Vs) Ø	100-5100	5294					NODC 319976	Cruise 3
139.08 Q-14	MELVILLE	08/07/72	09/08/72	57b 61a	234 †	T, S, sig-t, TherAnom, AD, Pt, OZ, PO4, NO2, NO3, SiO3	300-1500	4060		pigm-83 PrPr-10	Wd, W, Ta, Tw, Cld, Bar	Wa, Tra	Publication 39.01-317	Cruise CATO, Legs I & II 136 STD stations
139.08 V-10	NEW HORIZON	02/07/85	22/07/85	57b	130 † ††	T, S, sig-t, SVR, AD, OZ, PO4, NO2, NO3, SiO3	55-1000	1055		pigm-57 PrPr-17	Wd, W, Ta, Tw, Cld, Bar	Wa, Tra	NODC 328665 Publication 39.01-314	Cruise FRONTS, Legs I & II 81 CTD stations
139.08 V-11	NEW HORIZON	18/07/89	19/11/89	57b	183 †	T, S, sig-t, TherAnom, AD, OZ, PO4, NO2, NO3, SiO3	50-530	574		pigm-183 PrPr-25 Zoo-130	Wd, W, Ta, Tw, Cld, Bar	Wa, Tra	Publication 39.01-318	Cruises CalCOFI 8907, 8908, 8911 Period: 18/7-8/8/89 and 6-19/11/89 178 CTD stations
139.08 V-12	NEW HORIZON	11/05/84	02/12/84	60	396 †	(T, S, SVA, sig-t, SVR, AD, Vs) Ø	30-1470	1773					NODC 329542, 329543	Period: 11-30/5/84 and 14/11-2/12/84

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WDC-A. OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REQ.	TYPES			OBSERVATIONS					REMARKS			
					NO. OF STATS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL		SEA SURFACE	DATA CENTER REFERENCE NUMBER	
139.08	V-13	NEW HORIZON	10/03/85	25/03/85	60	149 †	(T, S, sig-t, SVA, AD, Vs) ∅	20-1478	1480						NODC 329544	
139.09	C-12	ROBERT D. CONRAD	17/03/87	19/04/87	32b	59 †	(T, S, SVA, sig-t, SVA, AD, Vs, O2, PO4, SiO3, NO2, NO3, PT) ∅	2500-5900	5960	XTB-221					NODC 319799 Publication 39.11-088	Cruise 28-03, Abyssal Boundary Current Studies 29 CTD stations
139.09	D-01	BURTON ISLAND	21/01/78	07/02/78	61a SO	55 * † (211)	∅ *								NODC 319857 *	Cruise 81 78 156 STD stations (Change 32)
139.15	E-15	WECOMA	02/05/84	23/08/84	57b	141 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	300-600	1185						NODC 329600, 329601	Cruise SUPER 1 & 2 (Subarctic Pacific Ecosystems Research Project) Period: 2-21/5/84 and 2-23/8/84
139.15	E-16	WECOMA	12/04/81	14/04/81	57b	23 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	30-990	991						NODC 329629	Cruise CODE 2, Leg 1
139.15	E-17	WECOMA	06/05/89	08/05/89	57b	20 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	60-1480	1486						NODC 329630	Cruise Northern California Coastal Circulation Study
139.16	B-11	NORTHWIND	19/12/76	03/01/77	61a SO	82 * † (240)	∅ *								NODC 319856 *	Cruise Deep Freeze 77 160 STD stations (Change 32)
139.16	M-11	GLACIER	26/11/78	18/02/79	45d 61a SO	48 * † (146)	∅ *								NODC 319858, 319859 *	Cruise GL79 94 STD stations (Change 32)
139.16	M-13	GLACIER	26/01/83	06/03/83	61a SO	21 †	(T, S, SVA, sig-t, SVA, Vs, PT) ∅	360-500	530	XTB-94			(Wd, Ta, Bar) ∅		NODC 319860, 319861 Publication 39.02-106	Cruise GL 83, Ross Sea Heat Flux Experiment
139.16	X-01	POLAR SEA	22/01/84	17/02/84	61a SO	262 †	(T, S, SVA, sig-t, SVA, Vs, PT, PO4, NO3, Si, CO2) ∅	150-2000	2100	XTB-229 ∅			(Wd, Ta, Bar) ∅		NODC 329598 NODC (8T) 066702 Publication 39.02-106	Cruise PS 84 Ross Sea Heat Flux Experiment
139.16	X-02	POLAR SEA	09/02/87	15/02/87	61a SO					XTB-196 ∅					NODC (8T) 070023 Publication 39.02-106	Cruise PS 87, Ross Sea Heat Flux Experiment
139.16	Y-01	POLAR STAR	28/01/85	07/02/85	61a SO	81 †	(T, S, SVA, sig-t, SVA, Vs, PT, NO3, Si) ∅	200-580	590	XTB-142 ∅			(Wd, Ta, Bar) ∅		NODC 329599 NODC (8T) 059924 Publication 39.02-106	Cruise ST 85, Ross Sea Heat Flux Experiment
139.16	Y-02	POLAR STAR	03/10/86	17/10/86	13	63 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	20-1485	1485						NODC 329548	Cruise 8C086

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					NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH					
139.16 Z-01	Helicopter	11/04/87	28/04/87	13 17	28 †	(T, S, sig-t, SVA, AD, Vs) 0	20-991	991				NODC 329549	Cruise 8CA87
139.17 A-32	EVERGREEN	05/05/87	20/05/87	23b	90 †	(T, S, sig-t, SVA, AD, Vs) 0	800-1000	1091				NODC 319836	Cruise IIP-87
139.18 A-02	KYWA	26/01/71	16/05/71	23b	30	(T, S, sig-t, SVA, AD, Vs, O2, PO4, SiO4) 0	35, 300-380	396		Wd 0		NODC 312911 312920	Period: 26/1/71 and 15-16/5/71
139.20 A-32	ACONA	08/07/66	15/07/66	57b 58	35	(T, S, sig-t, SVA, AD, Vs) 0	50-390	978				NODC 312014	Cruise 26
139.23 A-21	RESEARCHER	26/08/85	06/09/85	23b	-53 * (35)							NODC 319746	Cruise STACS 21 Delete NODC 319656, 319700 (Change 41)
139.23 A-24	RESEARCHER	13/01/86	20/11/86	23b	-88 * (245)							NODC 319747, 319748 *	Cruise STACS 23 thru 26 Delete NODC 319702, 319704 (Change 41)
139.23 A-28	RESEARCHER	22/01/80	03/02/80	23a	43 †	(T, S, sig-t, SVA, AD, Vs) 0	2300, 3300	3349				NODC 319912	Cruise 8eta Spiral
139.23 A-29	RESEARCHER	25/04/87	13/05/87	57b 61b	31 †	(T, S, sig-t, SVA, AD, Vs) 0	140-3500	3920				NODC 319884	Cruise EPI-87-RS, EPOCS
139.23 A-30	RESEARCHER	12/03/87	25/09/87	23b	104 †	(T, S, sig-t, SVA, AD, Vs) 0	200-5200	5303				NODC 319846, 319847	Cruise STACS 27 & 28 Period: 12-28/3/87 and 2-25/9/87
139.23 D-31	ALBATROSS IV	15/11/86	19/11/86	23b	31 †	(T, S, sig-t, SVA, AD, Vs) 0	50-120	223				NODC 319939	Cruise 8606
139.23 D-32	ALBATROSS IV	09/05/87	26/08/87	23b	244 †	(T, S, sig-t, SVA, AD, Vs) 0	5-70	72				NODC 319940 thru 319942	Cruises 8702, 8703, 8706 Period: 9-20/5/87 and 18-26/8/87
139.23 D-33	ALBATROSS IV	04/05/88	17/11/88	23b	47 †	(T, S, sig-t, SVA, AD, Vs) 0	10-50	51				NODC 319943, 319944	Cruises 8803 & 8810 Period: 4-6/5/88 and 16-17/11/88
139.23 F-06	OREGON II	12/08/89	21/08/89	23b	129 †	(T, S, sig-t, SVA, AD, Vs) 0	5-40	49			(T, S, sig-t, SVA, AD, Vs)-7 0	NODC 319948	Cruise 8904
139.23 K-23	DISCOVERER	28/02/79	13/03/79	57b	21 †	(T, S, sig-t, SVA, AD, Vs) 0	475-500	500				NODC 319814	

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					OCEANOGRAPHIC NO. OF STAS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE		
139.23 L-19	OCEANOGRAPHER	28/05/87	05/07/87	57b 61a	112 †	(T, S, sig-t, SVA, AD, Vs) 0	270-5400	5844						NODC 319949	Cruises TW1-87-OC, TW2-87-OC
139.23 L-20	OCEANOGRAPHER	08/10/87	03/11/87	57b 61b	61 †	(T, S, sig-t, SVA, AD, Vs) 0	200-990, 3500-4500	4526						NODC 319885	Cruise EP2-87-OC, EPOCS
139.23 L-21	OCEANOGRAPHER	12/05/88	03/12/88	57b 61a 61b	163 †	(T, S, sig-t, SVA, AD, Vs) 0	200-990, 3500-5300	5691						NODC 319886 thru 319889	Cruises EP1, EP2, EP4 & EP5-88-OC, EPOCS
139.23 O-05	Ships of Opportunity	01/01/85	31/12/85	48a 49 56 57a 57b 61a 61b 65 66					XTB-3, 926 0					NODC TOGA PACIFIC DATA BASE	Cruise TOGA
139.23 O-06	Ships of Opportunity	01/01/86	31/12/86	48a 48c 48f 49 56 57a 57b 61a 61b					XTB-5, 208 0					NODC TOGA PACIFIC DATA BASE	Cruise TOGA
139.23 P-18	DELAWARE II	07/06/89	15/12/89	23b	364 †	(T, S, sig-t, SVA, AD, Vs) 0	5-180	198						NODC 319945 thru 319947	Cruises 8904, 8907 & 8909
139.23 Q-07	MT. MITCHELL	03/05/89	19/11/89	23b 26	22 †	(T, S, sig-t, SVA, AD, Vs) 0	840-2750	2961						NODC 319924 thru 319932	
139.23 Q-08	MT. MITCHELL	13/09/88	08/10/88	23b	29 †	(T, S, sig-t, SVA, AD, Vs) 0	900-4700	4716						NODC 319882, 319883	Cruise STACS
139.23 X-08	MILLER FREEMAN	10/08/86	11/08/86	58	50 †	(T, S, sig-t, SVA, AD, Vs) 0	178-198	198						NODC 319790	
139.23 Y-20	DAVID STARR JORDAN	20/01/89	30/04/89	57b	158	(T, S, sig-t, SVA, AD, Vs) 0	50-550	1539					Wd, W, Ta, Tw, Cld, Bar	Publication 39.01-315	Cruises CalCOFI 8901, 8904 Period: 20/1-3/2/89 and 17-30/4/89
139.23 Y-21	DAVID STARR JORDAN	01/07/71	12/07/71	57b	49 †	(T, S, sig-t, SVA, AD, Vs) 0	500-1000	1001						NODC 319914	
139.23 Y-22	DAVID STARR JORDAN	06/04/79	24/09/79	57b	58 †	(T, S, sig-t, SVA, AD, Vs) 0	20-500	750						NODC 319815, 319816	

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						OCEANOGRAPHIC	SERIAL	STATIONS	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER		
						NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH							
139.23	Y-23	DAVID STARR JORDAN	05/12/82	14/12/82	57b	35 †	(T, S, sig-t, SVA, AD, Vs) ∅	30-500	1000					NODC 319823		
139.23	Y-24	DAVID STARR JORDAN	20/03/85	27/03/85	57b	24 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	90-100	100					NODC 319833		
139.23	Z-01	WHITING	04/03/88	14/07/88	23b	63 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	500-3500	3546					NODC 319880, 319881	Cruise STACS Period: 4-20/3/88 and 6-14/7/88	
139.26	B-03	TERITU	14/05/58	29/08/58	57a 57b	78	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	60-1050	1050					NODC 318747		
139.26	C-03	MOANA WAVE	25/03/83	16/04/83	57b	9	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	900-2490	4988					NODC 323099		
139.26	C-04	MOANA WAVE	22/02/75	27/05/75	57b 61b	184 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	350-550	1088					NODC 329626, 329627	Cruise 34, EL NINO Watch	
139.26	C-05	MOANA WAVE	21/06/88	28/07/88	48b 56 57a	117	(T, S, SVA, sig-t, SVA, AD, Vs, O2, PO4, NO2, NO3, SiO4) ∅	1000-4460	4623					NODC 323105		
139.37	E-01	MOALE	09/03/87	18/08/87	57b	142 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	40-1480	1486					NODC 319957, 319958	Cruise Northern California Coastal Circulation Study Period: 9-19/3/87 and 9-18/8/87	
139.37	E-02	MOALE	13/03/88	31/08/88	57b	192 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	35-1480	1486					NODC 319959, 319960	Cruise Northern California Coastal Circulation Study Period: 13-26/3/88 and 16-31/8/88	
139.37	E-03	MOALE	19/02/89	01/11/89	57b	188 †	(T, S, SVA, sig-t, SVA, AD, Vs) ∅	35-1480	1486					NODC 319961, 319963	Cruise Northern California Coastal Circulation Study Period: 19/2-18/3/89 and 19/10-1/11/89	
143.01	C-15	SURO NO. 3	07/03/66	25/10/66	50 52	58	(T, S, SVA, sig-t, SVA, AD, Vs, O2) ∅	40-150	180			(Wd, Ta, Tw, Cld, Bar) ∅	Wa ∅	NODC 240034		
143.02	R-15	PUSAN 852	02/02/85	21/10/85	50 52					XTB-230 ∅				NODC TOGA PACIFIC DATA BASE	Cruise TOGA	

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∅ INDICATES MACHINE PROCESSED DATA THAT CORRESPONDS TO THE DATA CENTER REFERENCE NUMBER.

†† FOR ADDITIONAL DESCRIPTIVE REMARKS PLEASE SEE THE REMARKS SECTION.

WDC-A, OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	OCEANOGRAPHIC SERIAL STATIONS					OBSERVATIONS				DATA CENTER REFERENCE NUMBER	REMARKS
					NO OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE		
143.02 R-16	PUSAN 852	08/10/86	15/10/86	50 51 52					XTD-46 Ø					NODC TOGA PACIFIC DATA BASE	Cruise TOGA
143.02 T-05	BUSAN 852	09/02/88	21/12/88	50 51 52	264	T, S, sig-t, SVA, TherAnom, AD, O2	30-200	217				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-080	Standard Section Observations
143.02 U-05	GYUNGBUK 853	11/02/88	17/01/89	52	266	T, S, sig-t, SVA, TherAnom, AD, O2	50-490	498				Wd, W, Ta, Tw, Cld, Bar	Wa, Col, Tra	Publication 43.02-080	Standard Section Observations
143.02 V-05	JEONBUK 868	12/02/88	23/12/88	51	144	T, S, sig-t, SVA, TherAnom, AD, O2	25-100	100				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-080	Standard Section Observations
143.02 X-03	GANGWON 867	14/04/88	19/10/88	52	136	T, S, sig-t, SVA, TherAnom, AD, Vs	50-500	509				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-080	Standard Section Observations
143.02 Y-03	INCHEON 866	20/02/88	30/12/88	51	168	T, S, sig-t, SVA, TherAnom, AD, O2	30-75	75				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-080	Standard Section Observations
148.....	MALAGASY REPUBLIC.....														
148.01 A-19	VAUBAN	17/06/77	24/06/77	64	5	(T, S, sig-t, SVA, AD, Vs, O2) Ø	890-970	970						NODC 550035	
148.01 A-20	VAUBAN	17/01/78	30/11/78	64	20	(T, S, sig-t, SVA, AD, Vs, O2) Ø	379-1090	1090						NODC 550036, 550038 thru 550040	
148.01 A-21	VAUBAN	02/04/79	20/11/79	64	48	(T, S, sig-t, SVA, AD, Vs, O2, NO2, SIO4) Ø	25-550	700						NODC 550042 thru 550047	
148.01 A-22	VAUBAN	14/01/80	30/05/80	64	26	(T, S, sig-t, SVA, AD, Vs) Ø	155-500	500						NODC 550048 thru 550051	
153.....	VENEZUELA.....														
153.01 B-16	LA SALLE	17/07/82	22/07/82	27	23	(T, S, sig-t, SVA, AD, Vs, O2, PO4, NO2, NO3, SIO3) Ø	10-50	50					(T, S, sig-t, SVA, AD, Vs, O2, PO4, NO2, NO3, SIO3)-34 Ø	NODC 930032	

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WDC-A, OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER				COUNTRY/ SHIP OR FIXED STATION		START DATE	END DATE	IHB REG.	TYPES OF STATIONS				OBSERVATIONS				DATA CENTER REFERENCE NUMBER	REMARKS
OCEANOGRAPHIC			NO. OF STAS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE							
153.01	C-01	PUERTO SANTOS	29/08/64	08/09/64	27	27	(T, S, SVA, AD, VS, O2, PO4, NO2, NO3, SiO3) Ø	10-350	500				(Wd, Ta, Tw) Ø	(Wa, Col, Tta) Ø	NODC 930031			
153.03	A-05	BIOMAR I	17/06/64	03/05/65	27	34	(T, S, SVA, sig-t, SVA, AD, VS, O2, PO4, Ptotal, NO2, NO3, SiO3, pH) Ø	10-450	1000				(Wd, Ta, Tw, Bar) Ø	(Wa, Col, Tta) Ø	NODC 930004	Period: 17-18/6/64, 26-30/11/64 and 18/2-3/5/65		
156.....		PANAMA.....																
156.01	A-01	MICRONESIAN COMMERCE, INDEPENDENCE, MOANA PACIFIC, PACIFIC ISLANDER, SOUTH ISLANDER	01/01/85	31/12/85	56 57a 57b 61a 65 66					XTB-549 Ø					NODC TOGA PACIFIC OATA BASE	Cruise TOGA		
156.01	A-02	MICRONESIAN COMMERCE, INDEPENDENCE, MOANA PACIFIC, PACIFIC ISLANDER	02/01/86	30/12/86	48 56 57a 57b 61a					XTB-675 Ø					NODC TOGA PACIFIC OATA BASE	Cruise TOGA		
173.....		PEOPLE'S REPUBLIC OF CHINA.....																
173.01	A-02	SHIJIAN	15/10/81	16/10/81	50	7	(T, S, SVA, sig-t, SVA, AD, VS, O2, pH) Ø	71-95	95						NODC 760231			
173.01	A-03	SHIJIAN	27/02/82	22/08/82	50	25	(T, S, SVA, sig-t, SVA, AD, VS, O2, pH) Ø	73-95	108						NODC 760232 thru 760235	Period: 27/2/82, 8-11/4/82, 6-7/6/82 and 21-22/8/82		
173.01	A-04	SHIJIAN	13/09/83	14/09/83	50	7	(T, S, SVA, sig-t, SVA, AD, VS, O2, pH) Ø	74-94	94						NODC 760236			
173.01	A-05	SHIJIAN	14/04/84	15/04/84	50	8	(T, S, SVA, sig-t, SVA, AD, VS, O2, PO4, SiO4, pH) Ø	68-95	105						NODC 760237			
173.01	A-06	SHIJIAN	23/05/86	22/11/86	50 56 57a	237 †	(T, S, SVA, sig-t, SVA, AD, VS, O2, PO4, NO2, NO3, SiO4, pH) Ø	30-1000	1031				(Wd, Ta, Tw, Cld, Bar) Ø	Wa Ø	NODC 760189, 760195 thru 760197	Period: 23/5-18/6/86 and 16/10-22/11/86 70 STD stations		

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WDC-A, OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER		COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	TYPES OF				OBSERVATIONS					DATA CENTER REFERENCE NUMBER	REMARKS
						OCEANOGRAPHIC NO. OF STAS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE		
173.01	A-07	SHILIAN	21/04/75	21/12/75	50	90	(T, S, sig-t, SVA, AD, Vs, O2, PO4, SiO4, pH) 0	15-100	113					(Col, Tra) 0	NODC 760006, 760008, 760012	Period: 21-27/4/75, 2-7/6/75 and 19-21/12/75
173.01	C-02	XIANGYANGHONG 01	09/05/82	14/11/82	50	22	(T, S, sig-t, SVA, AD, Vs, O2, pH) 0	63-88	105						NODC 760245 thru 760247	Period: 9-10/5/82, 13-15/9/82 and 12-14/11/82
173.01	C-03	XIANGYANGHONG 01	04/02/83	10/04/83	50	15	(T, S, sig-t, SVA, AD, Vs, O2, pH) 0	70-95	95						NODC 760248, 760249	Period: 4-6/2/83 and 9-10/4/83
173.01	C-04	XIANGYANGHONG 01	08/09/84	09/09/84	50	5	(T, S, sig-t, SVA, AD, Vs, O2, PO4, SiO4, pH) 0	71-82	82						NODC 760261	
173.01	E-02	XIANGYANGHONG 10	15/04/81	17/11/81	50	29	(T, S, sig-t, SVA, AD, Vs, O2, PO4, SiO4, pH) 0	58-92	92						NODC 760250 thru 760253	Period: 15-17/4/81, 14/7-14/8/81 and 15-17/11/81
173.01	E-03	XIANGYANGHONG 10	08/05/83	10/05/83	50	8	(T, S, sig-t, SVA, AD, Vs, O2) 0	72-95	95						NODC 760254	
173.01	E-04	XIANGYANGHONG 10	20/05/84	22/05/84	50	8	(T, S, sig-t, SVA, AD, Vs, O2, PO4, SiO4, pH) 0	62-85	85						NODC 760255	
173.01	G-02	SHUGUANG 06	12/02/81	16/03/81	50	14	(T, S, sig-t, SVA, AD, Vs, O2, pH) 0	73-93	94						NODC 760238, 760239	
173.01	G-03	SHUGUANG 06	16/02/82	17/02/82	50	5	(T, S, sig-t, SVA, AD, Vs, O2, pH) 0	71-100	100						NODC 760240	
173.01	G-04	SHUGUANG 06	07/06/83	07/11/83	50	16	(T, S, sig-t, SVA, AD, Vs, O2, pH) 0	75-100	103						NODC 760241, 760242	Period: 7-9/6/83 and 4-7/11/83
173.01	H-02	SHUGUANG 07	13/05/81	16/05/81	50	9	(T, S, sig-t, SVA, AD, Vs, O2, pH) 0	68-96	96						NODC 760243	
173.01	H-03	SHUGUANG 07	12/06/84	13/06/84	50	7	(T, S, sig-t, SVA, AD, Vs, O2, pH) 0	71-94	94						NODC 760244	

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WDC-A, OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	TYPES OF					OBSERVATIONS					REMARKS
					NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL	METEORO- LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER	
173.01	I-01 XIANGYANGHONG 16	18/08/83	20/08/83	50	7	(T, S, sig-t, sVA, AD, Vs, O2, PH) Ø	78-123	123						NODC 760256	
173.01	I-02 XIANGYANGHONG 16	13/08/84	29/11/84	50	17	(T, S, sig-t, sVA, AD, Vs, O2, PO4, NO2, NO3, SiO4, PH) Ø	50-100	103						NODC 760257, 760258	Period: 13-15/8/84 and 26-29/11/84
173.02	C-02 XIANGYANGHONG 14	22/09/87	22/10/87	56 57a	103 †	(T, S, sig-t, sVA, AD, Vs) Ø	1380-4300	4519						NODC 769014	Cruise 3, TOGA
173.02	C-03 XIANGYANGHONG 14	23/04/88	19/11/88	49 56 57a 61a	199 †	(T, S, sig-t, sVA, AD, Vs) Ø	400-4300	4914						NODC 769015, 769016	Cruises 4 & 5, TOGA Period: 23/4-25/5/88 and 17/10-19/11/88
173.02	C-04 XIANGYANGHONG 14	21/04/89	25/05/89	56 57a 61a	104 †	(T, S, sig-t, sVA, AD, Vs) Ø	1080-4310	4893						NODC 769017	Cruise 6, TOGA
173.02	D-01 XIANGYANGHONG 14	13/12/85	27/12/85	49 56 57a					XTB-23 Ø					NODC TOGA PACIFIC DATA BASE	Cruise TOGA
173.02	D-02 XIANGYANGHONG 05, XIANGYANGHONG 09, XIANGYANGHONG 10, XIANGYANGHONG 14	01/01/86	27/12/86	56 57a 57b 61a					XTB-327 Ø					NODC TOGA PACIFIC DATA BASE	Cruise TOGA
180.....	LIBERIA.....														
180.01	A-01 POLYNESIA	09/01/85	16/12/85	57b 61a					XTB-189 Ø					NODC TOGA PACIFIC DATA BASE	Cruise TOGA
180.01	A-02 PAC PRINCESS, POLYNESIA, SKRIM	01/01/86	29/12/86	57b 61a 61b					XTB-380 Ø					NODC TOGA PACIFIC DATA BASE	Cruise TOGA
181.....	SINGAPORE.....														
181.01	A-01 ANRO ASIA	26/07/86	15/09/86	48g 48h 48i					XTB-22 Ø					NODC TOGA PACIFIC DATA BASE	Cruise TOGA
206.....	CANADA.....				-8 * (86)										
206.04	A-32 ST. CATHARINES, STONE TOWN	18/01/61	07/08/61	57b	3	(T, S, sig-t, sVA, AD, Vs) Ø	1000-3400	3402						NODC 188428 thru 188430	Cruises P-61-1 thru 3 Duplicate data delete NODC 181328 Region: OWS "P"
206.04	A-35 ST. CATHARINES	08/05/56	17/07/56	57b											

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WDC-A, OCEANOGRAPHY DATA INFORMATION

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	TYPES OF OBSERVATIONS					METEORO LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER	REMARKS
					OCEANOGRAPHIC NO OF STAS.	PHYS. & CHEM. DATA	SERIAL SAMPLE DEPTHS	MAX DEPTH	BATHY- THERMO- GRAPH	CURRENTS	BIO- LOGICAL		
214.....	GERMANY (Federal Republic)												
214.01	BORKUMRIFF (LV), Nordsee (Platform), ELBE 1 (LV), FERHARBELT (LV), Kiel (LH)	01/01/57	31/12/88	1 4	1,085 ††	T, S	5-25	25		Surface- 2,970 * ††		Publication 14.02-197 *	Period: 1/1/57-12/31/59 and 1/1/68-31/12/88 Total Stats: 9,030 Total Currents: 327,301 (Change 44)
224.....	JAPAN.....												
224.01 A-11	Ocean Data Buoys	01/01/88	31/12/88	50 52 56 57a						Surface- 1,192		Publication 24.07-078	
224.10	Buoy	28/12/85	12/02/86	50									Change Institution Code (Change 43)
239.....	UNITED STATES.....												
239.02	Neah Bay	01/01/61	31/12/89	57b								Publication 39.01-313 *	*Period: Add 1989 (Change 44)
243.....	KOREA.....												
243.01 A-34	Ship not identified	03/02/88	07/01/89	50 51 52								Publication 43.02-080	Standard Section Observations
243.01 C-18	BUSAN 852	10/02/88	18/12/88	50 51 52	72	T, S, Sig-t, SVR, Thermom, AD, O2	30-125	130				Publication 43.02-080	Cruise Korea-Japan Cooperative Standard Section Observations

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PART III
REMARKS

REMARKS

106.09 F-24	SEA SURFACE: (T, S, sig-t, ΔD) -10: 3 (Single observations at surface) 7 (Single observations at various depths)
106.09 F-25	SEA SURFACE: (T, S, sig-t, Vs) -90 (Single observations at surface or various depths)
139.08 V-10	NO. OF STAS.: 49 stations are processed (NODC 328665)
214.01	NO. OF STAS.: New Total - 9,030 CURRENTS: New Total - 327,301 NOTE:WDC-A, Oceanography maintains detailed information concerning numbers of stations and numbers of current observations, archived by year, for each Light Vessel. This information is available upon request.
224.01 A-11	CURRENTS: 1,192 (Each station represents 8 readings taken during one day) SEA SURFACE: T (Single observations at 1, 50, and 100 m)

TRACK CHARTS

Track charts are available from WDC-A, Oceanography for cruises represented by the following Catalogue Numbers:

<u>WDC-A Catalogue Number</u>	<u>Page No.</u>
114.01 T-01	33
114.12 A-03	33
123.06 C-01	34
124.13 E-68	35
124.16 A-31	36
124.16 B-11	36
124.24 B-50	36
124.24 B-51	36
124.31 B-05	36
138.05 B-25	40
139.08 Q-14	43
139.08 V-10	43
139.08 V-11	43
139.09 C-12	44
139.16 M-13	44
139.16 X-01	44
139.16 X-02	44
139.16 Y-01	44
139.23 A-29	45
139.23 L-20	46
139.23 L-21	46
139.23 Y-20	46

PART IV
DATA HOLDINGS OF
RNODC's AND
SPECIALIZED DATA CENTERS

DATA HOLDINGS OF RNODC's AND SPECIALIZED DATA CENTERS

This section of the Change Notice provides information on the availability of specialized data sets prepared by the various Responsible National Oceanographic Data Centers (RNODC's) and other Specialized Data Centers. Only those data sets that have actually been received by WDC-A, Oceanography are described in this section. WDC-A can provide magnetic tape copies of these data sets in the originator's format.

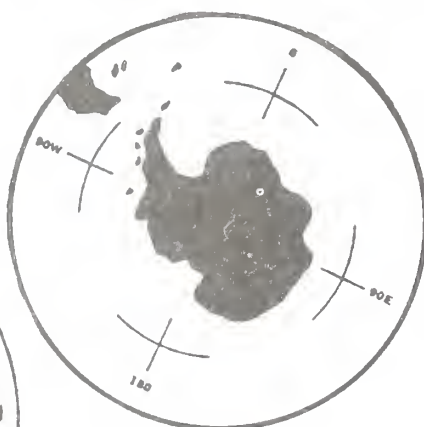
These data products are not described in the usual manner in the Catalogue portion of the Change Notice (except for certain separately-identified cruises that are also included in data sets such as FOY), as the data are not usually merged with the standard WDC-A, Oceanography data bases. Thus they constitute a suite of data products, prepared by RNODC's and other Specialized Data Centers, that are separate and distinct from the standard data types regularly catalogued in the Change Notices and normally available from WDC-A.

Such data products are not necessarily intended to be routinely exchanged by the WDC's under normal international data exchange guidelines. They may be voluminous or costly to prepare and, thus, may be precluded from regular data exchanges between WDC's and their exchange cooperators. Data sets in automated form are available from the WDC's usually at a cost not to exceed the cost of reproduction and postage.

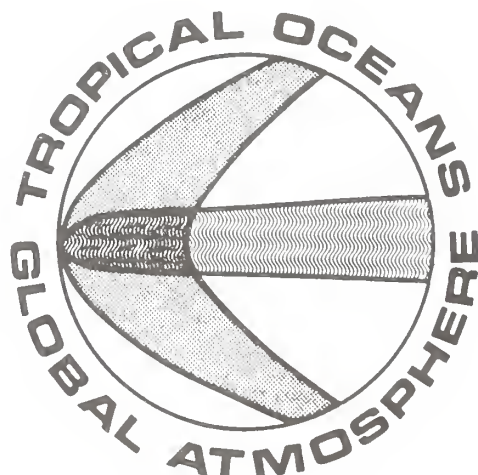
MEDALPEX



IGOSS



SOC



RNODC FOY

FGGE OPERATIONAL YEAR GLOBAL OCEAN CLIMATE DATA BASE

The National Oceanographic Data Center (NODC) is pleased to announce the availability of the Global Ocean Climate Data Base compiled as part of its efforts as the Responsible National Oceanographic Data Center for the FGGE* Operational Year (RNODC/FOY). The Global Ocean Climate Data Base is a collection of Oceanographic data submitted to NODC by 17 different countries. Although the formal FGGE Operational Year was from 1 December 1978 to 30 November 1979, the data set covers the extended FOY period from 1 September 1978 to 29 February 1980.

The data base includes four types of data: (1) oceanographic hydrocast (bottle) data, (2) conductivity/ salinity-temperature-depth (C/STD) data, (3) expendable bathythermograph (XBT)

data, and (4) Eulerian current (current meter) data. The data are recorded on magnetic tape in two different formats: (1) the Intergovernmental Oceanographic Commission General Exchange Format 3 (GF3) and (2) NODC archive formats (different format for each of the four types of data). In GF3 the data base comprises eight magnetic tapes; in the NODC formats the data base comprises four tapes.

The FGGE Operational Year was the culmination of a series of international ocean/atmosphere research programs conducted in the 1970's. This effort, in turn, was a steppingstone toward the increasingly ambitious and large-scale research and monitoring programs of the 1980's and 1990's that are directed toward fuller understanding of tropical dynamics and their influence on global ocean/atmosphere phenomena.

**FGGE = First GARP Global Experiment, also known as the Global Weather Experiment.
GARP = Global Atmosphere Research Program.*



The FGGE/FOY Data Base

The FGGE/FOY Global Ocean Climate Data Base compiled by the RNODC contains: 10,413 Oceanographic hydrocast (bottle) stations; 4,030 CTD/STD casts; 28,733 expendable bathythermograph (XBT)

temperature profiles; and 294 months of time-series data from current meter moorings. The sources of these data are summarized in Table 1.

Table 1. FGGE Operational Year Global Ocean Climate Data Base				
Country	Data Type			
	Oceanographic Stations (stations)	CTD/STD (stations)	XBT (stations)	Current Meter (meter-months)
Australia	--	--	2,754	--
Canada	324	--	507	--
People's Republic of China	318	--	--	--
Republic of the Congo	307	--	--	--
France	--	--	307	--
German Democratic Republic	74	--	--	--
Federal Republic of Germany	--	--	1,366	--
Ghana	335	--	--	--
Italy	--	--	55	--
Japan	1,138	--	832	--
Philippines	--	--	8	--
Poland	87	--	267	--
Republic of South Africa	--	--	56	--
Spain	--	--	180	--
UK	--	64	944	--
USA	1,271	3,966	20,727	294
USSR	6,559	--	730	--
TOTAL	10,413	4,030	28,733	294

Table 2 lists the number of tapes included in the data set. Customers may order the entire set of

tapes or only the tape(s) for one or more of the four different data types in either of the two format options.

Table 2. FOY Global Ocean Climate Data Tapes			
Data Type	Data Quantity	Number of Tapes	
		GF3 Format (1600 bpi)	NODC Format (6250 bpi)*
Oceanographic Station (hydrocast)	10,413 stations (128 cruises)	2	1
CTD/STD	4,030 stations (62 cruises)	1	1
XBT	28,733 stations (571 cruises)	3	1
Current Meter	294 months (27 meters)	2	1
TOTAL		8	4
<i>*Data tapes in NODC archive formats are also available by special request in 1600 bpi density</i>			

Data Availability

Magnetic tape copies of the FOY Global Ocean Climate Data Base are available from the RNODC in either GF3 format or in NODC archive formats. Magnetic tape characteristics are: (1) GF3 format -- 9 track, 1600bpi, ANSI/ASCII, non-labeled, record length = 1920, unblocked; (2) NODC formats -- 9 track, 6250 bpi, ANSI/ASCII, non-labeled, variable record length, maximum blocksize = 4,160 (oceanographic station and CTD/STD data), 2,600 (XBT data), and any multiple of 60 (current meter data).

Complete sets of tapes or individual tapes are available at the cost of tape reproduction from:

World Data Center A, Oceanography
NOAA
Washington, DC 20235
USA

Telephone: 202-606-4571 or FTS 266-4571
Electronic mail *NODC.WDCA* on
TELEMAIL/Omnet

RNODC MEDALPEX (Sea Level)

Mediterranean Alpine Experiment Sea Level Data Set

In 1975, the IOC decided to support the development of an oceanographic program in the Mediterranean during the GARP Alpine Experiment (ALPEX). The MEDALPEX project took place between 1 September 1981 and 30 September 1982, with a special period of observation from 15 February 1982 to 30 April 1982. It was a multi-national project involving scientists from 7 countries.

The main purpose of MEDALPEX was to increase understanding of the effect of wind forcing on the dynamics of the western part of the Mediterranean Basin. Specific studies were undertaken, each having a particular scientific objective including:

1. The interrelationship between the general circulation and mesoscale eddies
2. Offshore dynamic response mechanisms under severe weather conditions
3. Storm surges and the piling up of water, especially in the Adriatic and Ligurian seas

The measurement of sea level was considered to be an important component of the observation program to support these studies. A wide range of other types of oceanographic data were also collected, including classical and synoptic meteorological measurements, data collected using remote sensing techniques and data from current meters, thermistor chains, waverider buoys, CTDs and XBTs.

The Permanent Service for Mean Sea Level (PSMSL) was requested by IOC to fulfil the role of the Responsible National Oceanographic Data Center for the MEDALPEX sea level data. The work was undertaken on behalf of PSMSL by the Marine Information and Advisory Service (MIAS) - U.K.'s National Oceanographic Data Center.

Sea level data were submitted to MIAS from 29 of the 40 MEDALPEX sites. An inventory of the data is given on the following page. Measurements from 28 of the sites were taken using conventional stilling wells and, with one exception, were supplied to MIAS as hourly values. Data from the remaining site, off the coast of Corsica, were collected by an Aanderaa water level recorder at half-hourly intervals.

INVENTORY OF DATA RECEIVED
BY MEDALPEX SEA LEVEL DATA CENTER

SITE	LATITUDE	LONGITUDE	START DATE	SERIES DURATION	CYCLE INTERVAL
	DDD MM.MH	DDD MM.MH	DD/MM/YY	WEEKS	SECS
CADIZ	36 32.0N	6 17.0W	01/09/81	56	3600
TARIFA	36 0.0N	5 36.0W	01/09/81	56	3600
GIBRALTAR	36 8.0N	5 21.0W	01/09/81	56	3600
CEUTA	35 54.0N	5 19.0W	01/09/81	56	3600
ALGECIRAS	36 7.0N	5 26.0W	01/09/81	56	3600
PUERTOS BANUS	36 37.0N	4 55.0W		NO DATA	
MALAGA	36 43.0N	4 25.0W	01/09/81	56	3600
ALMERIA	36 49.7N	2 29.2W	14/08/81	58	3600
CARTEGENA	37 36.0N	0 59.0W		NO DATA	
ALICANTE I	38 20.3N	0 30.4W	23/08/81	60	3600
ALICANTE III	38 20.3N	0 30.7W	28/08/81	60	3600
PALMA DE MALLORCA	39 33.0N	2 38.0E	01/09/81	56	3600
BLANES	41 41.0N	2 48.0E		NO TIDE GAUGE	
ROSAS	42 15.0N	3 11.0E		NO TIDE GAUGE	
PORT VENDRES	42 31.0N	3 6.0E	28/12/81	39	3600
SETE	43 25.0N	3 43.0E		NO DATA	
FOS	43 25.0N	4 46.0E		NO DATA	
TOULON	43 7.0N	5 55.0E	30/08/81	56	3600
NICE	43 42.0N	7 16.0E	03/07/81	68	3600
MONACO	43 44.0N	7 25.0E	29/06/81	69	3600
OFFSHORE	42 34.8N	8 44.0E	06/04/82	18	1800
NEAR CALVI	42 34.8N	8 44.0E	29/07/82	9	1800
AJACCIO	41 55.0N	8 43.0E	30/08/81	49	3600
CAGLIARI	39 13.0N	9 8.0E		NO DATA	
SAVONA	44 18.0N	8 28.0E		NO DATA	
GENOVA	44 24.0N	8 54.0E	31/08/81	58	3600
LA SPEZIA	44 7.0N	9 48.0E		NO DATA	
LIVORNO	43 33.2N	10 18.2E	31/08/81	49	3600
CIVITAVECCHIA	42 5.7N	11 47.4E	25/08/81	22	3600
NAPOLI	40 50.4N	14 16.2E	31/08/81	56	3600
PALERMO	38 8.0N	13 23.0E		NO DATA	
ANCONA	43 37.0N	13 31.0E	01/09/81	56	3600
PTO CORSINI	44 35.0N	12 20.0E		NO DATA	
VENEZIA	45 26.0N	12 20.0E	01/01/81	104	3600
KOPER	45 33.0N	13 44.0E	28/02/82	9	3600
ROVINJ	45 5.0N	13 38.0E	28/02/82	9	3600
BAKAR	45 18.0N	14 32.0E	28/02/82	9	3600
ZADAR	44 5.4N	15 16.3E	28/02/82	9	3600
NOVALJA	44 33.3N	14 13.2E	28/02/82	9	3600
SPLIT	43 30.0N	16 26.0E	28/02/82	9	3600
DUBROVNIK	42 40.0N	18 4.0E	28/02/82	9	3600
BAR	42 5.0N	19 5.0E	28/02/82	9	3600

In compiling the dataset, MIAS translated all incoming data into a common format with elevation values standardized to meters and times to GMT. The data for each site were plotted as a time series and checks were carried out for gaps or constant values, spikes, spurious data or punching errors. Further checks were carried out by tidally analyzing and low pass filtering the data. Non-tidal fluctuations were investigated using principal component analysis. Qualifying information applicable to the data from each site was checked for inconsistencies and completeness, and appropriate documentation was stored with the data in the form of plain language records. The complete quality controlled dataset, including documentation, is available as a single magnetic tape formatted in GF3, the IOC's standard format for the exchange of oceanographic data. A copy of the magnetic tape may be obtained at a cost not to exceed the cost of reproduction and postage from:

World Data Center A, Oceanography
National Oceanic & Atmospheric Administration
Washington, D.C. 20235
U.S.A.

or

RNODC/MEDALPEX Sea Level Data
MIAS
Bidston Observatory
Merseyside L43 7RA
U.K.

TROPICAL OCEAN and GLOBAL ATMOSPHERE PROGRAMME TROPICAL SUBSURFACE DATA SET

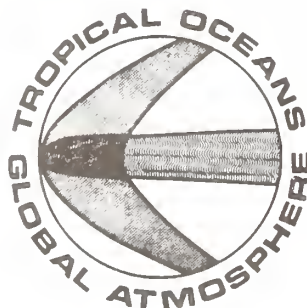
TOGA Tropical Subsurface Data Centre

The TOGA Tropical Subsurface Data Centre in Brest operates within the framework of both the IOC's International Oceanographic Data Exchange (IODE) system and the Joint IOC-WMO Integrated Global Ocean Services System (IGOSS). The Centre collects subsurface ocean observations for the tropical oceans (30°N-30°S) from the following sources:

1. tropical oceans observations from the IGOSS network;
2. additional vertical temperature profiles from XBT's and from drifting or moored buoys with thermistor chains, not sent over the GTS;
3. time series of temperature and conductivity (salinity) at fixed depth from moored thermistor chains;
4. surface temperature and conductivity (salinity) data and vertical profiles of temperature and conductivity as from CTD's, bottle casts, and WCTD's; and
5. other subsurface ocean temperature and conductivity (salinity) measurements from process-oriented intensive oceanographic observation projects in the tropical oceans.

Initially, data are collected from radio transmissions, with fully digitized and quality controlled observations added with time.

The subsurface thermal data described above are analyzed and the Centre produces quality-controlled Level II-B data sets for the tropical oceans for the ten-year period (1985-1994). The Centre is also responsible for provision of these data sets on magnetic tape in GF-3 format to other TOGA Data Centres and to the World Data Centers, Oceanography at appropriate intervals.



WDC-A, Oceanography Support to TOGA

WDC-A, Oceanography serves as an archival center for the TOGA Tropical Subsurface Data Sets. Its responsibilities are to provide TOGA data sets to requesters in the international scientific community, at a cost not to exceed that of data reproduction and postage, and to provide copies of all TOGA data sets received to World Data Center B, Oceanography in exchange.

WDC-A, Oceanography provides additional data management support to the TOGA program by its contributions to the enhancement of global tropical thermal data bases. WDC-A has utilized the IOC's lists of Declared National Programs (DNP's) to identify selected cruises for which data were observed in the tropical oceans and, subsequently, requested the data. Report of Observations/Samples Collected by Oceanographic Programs (ROSCOP) marine data inventory forms have been used in the same manner to identify available tropical oceans data. The compilation of the Time Series Data Inventories of the world's oceans by WDC-A, has also resulted in some cases in the identification of available tropical ocean observations. WDC-A expects to utilize these tools increasingly in the future to acquire selected data sets intended to further enhance the tropical oceans data bases.

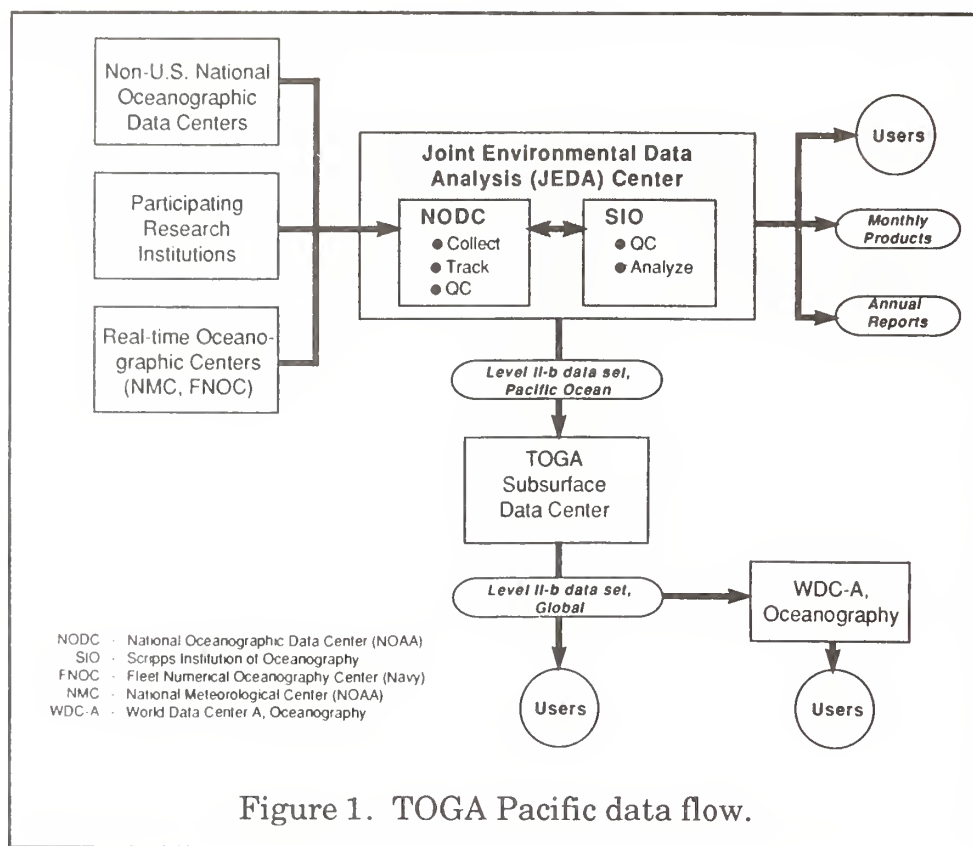
Climate researchers and modelling experts have identified the digitization of historical oceanographic observations as one of the key elements required in data management support for TOGA and other Global Change programs, such as GOFs and WOCE. Such data sets are frequently extremely useful in filling spatial or temporal gaps in existing digital data holdings. WDC-A, Oceanography's data archives contain data for a substantial number of observations in manuscript form that have never been processed. A significant portion of these could provide support to TOGA. For example, some Japan Fisheries Agency standard sections in the Western Pacific are in the TOGA area. Many of these manuscript data sets would be amenable to data entry by an optical scanning device. The possibility of support for procurement of such a device is being explored by WDC-A.

TOGA Tropical Subsurface Data Products

WDC-A receives Level II-B data sets from the Subsurface Data Centre in Brest for both Atlantic and Indian Oceans data, as previously described. Magnetic tape copies of the Level II-B data sets for the Atlantic and Indian Oceans are then provided to WDC-B, Oceanography in exchange. Magnetic tape copies of these data sets are available at the cost of tape reproduction from:

World Data Center A,
Oceanography
National Oceanic and
Atmospheric Administration
Washington, D.C. 20235 U.S.A.

TOGA Subsurface Data Centre
Centre IFREMER de Brest
BP 70
29263 Plouzane
France



WDC-A, by virtue of its collocation with the U.S. National Oceanographic Data Center (NODC), also has access to the Tropical Pacific Ocean data set prepared jointly by NODC and the Scripps Institution of Oceanography (SIO), serving as the Joint Environmental Data Analysis (JEDA) Center. JEDA tracks, acquires, quality controls, and merges all available subsurface thermal data for the Tropical Pacific. NODC assembles, reformats and initiates quality control of the data; SIO performs further quality control and analysis of the data. The TOGA Pacific data flow is depicted in Figure 1. Each yearly Level II-B Pacific Ocean data set undergoes the full spectrum of quality control and analysis by the JEDA Center. It is then converted to the GF-3 format and provided to WDC-A, which in turn provides a tape copy to WDC-B in exchange. The TOGA Pacific Data Sets are available on magnetic tape at the cost of tape reproduction from:

World Data Center-A, Oceanography
NOAA
Washington, D.C. 20235 U.S.A.

JEDA Center
National Oceanographic Data
Center
NOAA
Washington, D.C. 20235 U.S.A

JEDA Center
Scripps Institution of
Oceanography
University of California
La Jolla, CA 92093 U.S.A.

RNODC SOC

SOUTHERN OCEANS DATA SET

The RNODC/Southern Oceans (RNODC/SOC) was created in order to provide a regional data management and data information service for Southern Oceans physical and chemical oceanographic data. The RNODC was created under guidelines set forth in Recommendation XII.1 by the IOC's Technical Committee on International Oceanographic Data Exchange (IODE XII, Moscow 10-17 December 1986).

The Terms of Reference of the RNODC/SOC include the following responsibilities:

- Acquire, quality control, and store in standard format the physical and chemical data obtained by the international community from the cruises and research programmes carried out in the Southern Oceans;
- Co-operate closely with the World Data Centers, Oceanography by sending regular shipments (at least once a year), free of charge, of complete sets of physical and chemical data stored on magnetic tapes in GF3, and inventories, data summaries, and other data products related to the physical and chemical data from the Southern Oceans;
- Assist the World Data Centers by sending copies to them of any ROSCOP forms submitted to the RNODC-SOC;
- Co-operate with the BIOMASS Data Center, regarding exchange of data and inventories, as well as other data products.

The RNODC-SOC is located in and operated by the Argentine Oceanographic Data Center (CEADO).



RNODC/SOC Oceanographic Data Set

The RNODC/SOC data set contains data for all available oceanographic stations for the Southern Oceans between 50° and the Antarctic Continent. Data for a total of 10,869 oceanographic stations taken during 291 Southern Oceans cruises are included in the data set. Seasonally, the data totals are nearly 2,000 observations taken during the Austral Winter (April-September) and more than 8,000 observations taken during the Austral Summer (October-March). Southern Oceans observational data taken by 16 countries have been received by the RNODC.

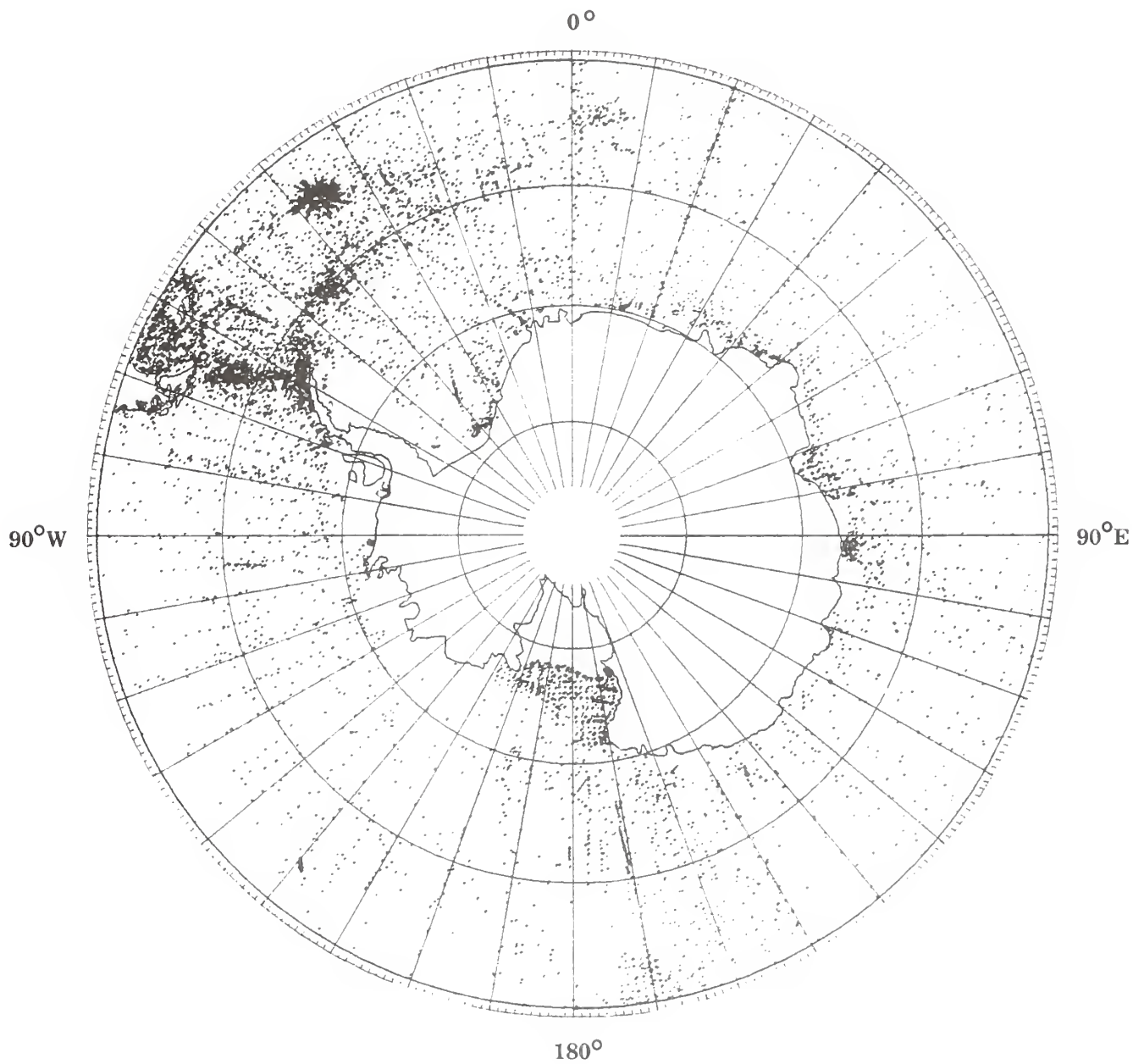
The RNODC/SOC data set is available from:

RNODC/SOC
Servicio de Hidrografia Naval (A.R.A.)
Centro Argentino de Datos Oceanograficos
Avda. Montes de Oca 2124
(1271) Buenos Aires
Republica Argentina

or

World Data Center A, Oceanography
National Oceanic & Atmospheric Administration
Washington, D.C. 20235 U.S.A.

SOUTHERN OCEANS OCEANOGRAPHIC STATION PLOT



This plot shows the locations of 10,869 oceanographic data observations made in the Southern Oceans and registered in the RNODC/SOC master data file.

RNODC IGOSS

INTEGRATED GLOBAL OCEAN SERVICES SYSTEM DATA SET

IGOSS Background

The Integrated Global Ocean Services System (IGOSS) is a worldwide system for the rapid collection, exchange, and analysis of oceanographic data and the timely preparation and dissemination of ocean products and services. IGOSS was established to support oceanographic and meteorological research efforts by providing: (1) a global distribution of oceanographic observations, (2) a mechanism for the timely and effective exchange of data, and (3) the preparation of oceanographic analysis products capable of supporting global change and climate research studies. IGOSS products and services can be useful for input to large scale circulation models, for research survey planning, and for direct application in commercial fisheries, recreation, commercial shipping, and search and rescue efforts. Real-time ocean products currently available include sea surface and subsurface temperature analyses, as well as graphical depictions of mixed layer depths and ocean frontal positions. Additional analyses and data summaries available as delayed-mode products include: (1) ocean currents, (2) salinity, (3) distribution of pollutants, and (4) weekly and monthly temperature means. The IGOSS data are BATHY (profiles of temperature with depth) and TESAC (temperature/salinity/current profiles with depth).

The major operational elements of the IGOSS program are: (1) observing system, (2) data processing and services system, (3) telecommunication arrangements, (4) marine pollution monitoring, and (5) data archival and exchange. The organizational structure of the IGOSS data processing and services system consists of World Oceanographic Centers in Moscow and Washington and National and Specialized Oceanographic Centers in participating nations. Data from all cooperating nations are combined in standard formats at the World Oceanographic Centers, and then used as input to global and hemispheric analyses for improved weather forecasting, global climate studies, and a variety of products for oceanographic research uses. National Oceanographic Centers provide quality control for data from their country entering the international exchange system via a high speed global telecommunications link called the Global Telecommunication System (GTS) of the World Weather Watch.



IGOSS



Long-range data exchange and service arrangements and long-term archival functions for IGOSS data are performed by National Oceanographic Data Centers in Japan, the U.S.S.R., and the United States. These NODC's, serving as Responsible National Oceanographic Data Centers (RNODC's) for IGOSS, compile archives of IGOSS data and products, assume responsibilities for specified regions of the world oceans, and deal with problems of quality control. They maintain geographically sorted, updated magnetic tape files of observations received via the GTS.

RNODC's/IGOSS Terms of Reference

The terms of reference for RNODC's/IGOSS are as follows:

1. Acquire BATHY and TESAC datasets and sub-surface temperature data from drifting and moored buoys from IGOSS Specialized Oceanographic Centres (SOC) for area of responsibility; apply supplementary quality control to acquired data and provide services to users after 30 days from receipt of that data;
2. Acquire non-operational BATHY, TESAC, and sub-surface temperature data from drifting and moored buoys and/or datasets for area of responsibility; apply quality control to non-operational data, prepare integrated datasets, and provide services to users;
3. Maintain a data base and inventories for areas of responsibility;
4. Prepare products based on operational and non-operational IGOSS data, as appropriate; also, archive and make available to users, selected data products provided by SOCs and analysis centres;
5. Provide for exchange of IGOSS data in GF-3 format with other RNODC's or to users as requested;
6. Transmit datasets in GF-3 format, inventories of archived data, and selected data products to the WDC's annually;
7. Provide for exchange of documentation and software regarding quality control and processing procedures with other RNODC's, as possible;
8. Participate in efforts to monitor data flow, and participate, as feasible, in IOC training programmes;
9. Prepare inventories of available data sets for the RNODC's area of interest and transmit them to the IOC Secretariat semiannually.

RNODC/IGOSS-Japan

The RNODC/IGOSS-Japan is operated by the Japan Oceanographic Data Center (JODC), with support from the Japan Meteorological Agency (JMA), which serves as a Specialized Oceanographic Center (SOC) for IGOSS. At the SOC, systematic quality control of the collected BATHY/TESAC reports is made. The SOC compiles the IGOSS monthly summaries including maps showing the geographical distribution of BATHY/TESAC messages and numbers of messages of individual ships and sends them to the Secretariat of the IOC.

IGOSS data submitted by the SOC are stored in three formats at the RNODC/IGOSS. The first includes the original data file compiled on a semiannual basis. This file contains the collected and processed data from the GTS and other operational sources within the area of responsibility. The second contains the data and data inventory files recorded in a form of the SYNDARC Format, and is available to users as computer-generated data summaries, statistical presentations, and graphical plots, or in a medium which allows the user to further process the data using a personal computer. During the conversion process, minimum quality control procedures are applied to the original data based on IOC Manuals and Guides No. 3. The third is the JODC-formatted version of the data inventory file. From this file, data products such as data summaries and location plots of observations are provided to users, as well as to the IOC and WMO.

RNODC/IGOSS-U.S.S.R.

The RNODC/IGOSS-U.S.S.R. and SOC for IGOSS data was established in 1984 under the auspices of the All-Union Scientific Research Center for Hydrometeorological Information and Hydrometeorological Scientific Research Center of the USSR (Hydrometcentre USSR). The responsibilities of the RNODC/IGOSS include the collection of BATHY/TESAC messages and logs, quality control of the data, preparation of data sets on magnetic tape, and the development of products concerning availability and time-space data distribution. The RNODC/IGOSS also provides national and international users with copies of data, results of analyses, and with other products for its area of responsibility.

The responsibilities of the SOC include preparation, publication, and distribution of different types of operational oceanographic products on a regular basis including those distributed via FAX machines that are readily available to different groups of users.

These activities are carried out in accordance with the procedures spelled out in the IOC's Guide to Operational Procedures for the Collection and Exchange of Oceanographic Data (BATHY and TESAC), 1985 and the Guide to the IGOSS Data Processing and Services System, 1983.

RNODC/IGOSS-U.S.

The RNODC/IGOSS-U.S., located at the National Oceanographic Data Center (NODC), receives near real-time data weekly from the Ocean Products Center at Suitland, Maryland and the Ocean Applications Group in Monterey, California. These data are extracted from the Global Telecommunications System (GTS) on a daily basis for screening and editing. At the RNODC, the magnetic tapes containing the near real-time data sent by the two organizations are run through a series of computer programs to convert the data into NODC's Universal Bathythermograph (UBT) format. This data set is next sorted by date, time, position, and an indicator of the source of the data. The sorted file is then compared with existing observations and duplicates are eliminated.

The records retained are then sorted by reference number, date, and time to produce a cruise-ordered data set. From this final data set, inventory records are created and applied to NODC's Data Inventory Data Base (DINDB). These data are then merged into the RNODC/IGOSS Archive. The Archive is updated on a monthly basis in geographical sequence.

Data in the U.S. RNODC/IGOSS Archive are then available for international exchange and can be provided to users in a variety of forms ranging from magnetic tape copies to computer-generated data summaries, statistical analyses, and graphic plots.

Availability of IGOSS Data and Products through WDC A, Oceanography

Various RNODC/IGOSS data, analyses, and products are available through WDC-A, Oceanography. Upon request, WDC-A will provide magnetic tape copies of pertinent data products, or, alternatively, refer the requester to the appropriate IGOSS data source.

RNODC FOR DRIFTING BUOYS

Background

The Marine Environmental Data Service (MEDS) began operation of the RNODC/Drifting Buoy Data in January 1986. The RNODC acquires Drifting Buoy Data from worldwide sources, makes the data available to international scientific programs, and prepares geographical plots of Drifting Buoy locations and tracks for the world oceans on a monthly basis. The RNODC also provides monthly statistics of operational buoys and the number of messages received from them.

Acquisition of Drifting Buoy Data

There are three procedures by which Drifting Buoy Data are received by the RNODC. The first and more traditional is for the principal investigator to submit his data directly to the RNODC, or to his National Oceanographic Data Centre which in turn submits the data to the RNODC. For historical data sets, this is the only option available. Data received in this way are usually of the highest quality, since they have undergone the most discriminating calibration and quality control procedures under the direction of the principal investigator; however, data entering the system in this manner are not sufficiently timely to meet the operational requirements of the major global science programs.

The second path for data flow to the RNODC is via the GTS. An advantage of this procedure is that the data are available in time scales suitable for the operational requirements of researchers in programs such as TOGA and WOCE, as well as for other operational users such as meteorological forecasters. Data received in this way may be less accurate, because they have not been fully reviewed and assessed by the principal investigator. For drifting buoy data, there is also a problem in that using the DRIBU format on the GTS for some buoys may limit the data that can be transmitted, because of a requirement to restrict the information to 256 bits.

A third procedure involves retrieving the DRIBU data as they pass through Services ARGOS. Although these data still have not been reviewed and assessed by the principal investigator, they are an improvement over the GTS data in that both time of data and time of position are available to improve velocity calculations. Data received by Service ARGOS are stored on magnetic tape for a period of 90 days. After this time, the tapes are reused and the data then reside solely in the hands of the principal investigators. Canada and the United States have

agreed to share the cost of buying copies of these tapes for the RNODC. Data from a buoy can only be provided to the RNODC if the principal investigator has given consent in writing.

RNODC/Drifting Buoy Data Base

MEDS utilizes a hierarchical database, called System 2000, to store the drifting buoy data; because of the volume of data, each year of data is stored in its own data base. In order to provide services to users at all time scales and to have available at each time scale the best data available, the RNODC has decided to accept all data using the following hierarchical guidelines:

1. Where possible, Principal Investigators are requested to make their data available to other operational users and to the RNODC by having the data transmitted on the GTS. The RNODC will copy all available data from the GTS, quality control it, and update it into the data base on a weekly basis.
2. Principal Investigators are also requested to agree to have Service ARGOS provide a copy of their data to MEDS via tape each month whether or not those data have already been on the GTS. The data circulated on the GTS have only the one time included which poses a difficulty in calculating velocities. Thus, the tape data with the two times is an improvement to the database and will be used to replace the GTS data in the database. In addition, data will be picked up which could not be circulated on the GTS because of the format of the transmission from the buoy.

If Service Argos has not already been supplied with the calibration constants, channel allocations, and algorithms, or has not been requested to make the conversions to physical units, there will be a requirement for the RNODC to obtain this information from the principal investigators. Principal investigators are reminded that if the sensor data cannot be made available, the position data itself is of value for the database.

3. Principal Investigators are requested to provide a copy of their Drifting Buoy Data either directly to the RNODC when the fully processed, quality controlled version is available, or to provide the data to their National Oceanographic Data Centre, where the RNODC will be requesting such data on a regular basis. Data received by this path will replace GTS or Service ARGOS versions of the data in the database.

By receiving data in the configuration set forth above, and replacing earlier, lower quality data as higher quality versions of the data arrive, the RNODC can offer

Joint Archive for Sea Level (JASL)

Through the creation of the Joint Archive for Sea Level (JASL) with the University of Hawaii, the National Oceanographic Data Center, serving as a Specialized Data Center, is providing data management for this effort and assisting in the acquisition, processing, quality assurance, archiving, and dissemination of the data. The Joint Archive for Sea Level submits sea level time series data updates to NODC on a yearly basis. These updates may include data from new stations, as well as previously unprocessed data from existing stations. In addition, the updates may include data previously submitted to NODC that have been reprocessed to improve data quality. Therefore, to update the sea level data files for a station already in the database, NODC completely replaces the data time series for that station with a new version that may include both new and reprocessed data.

Availability of JASL Data through WDC-A, Oceanography

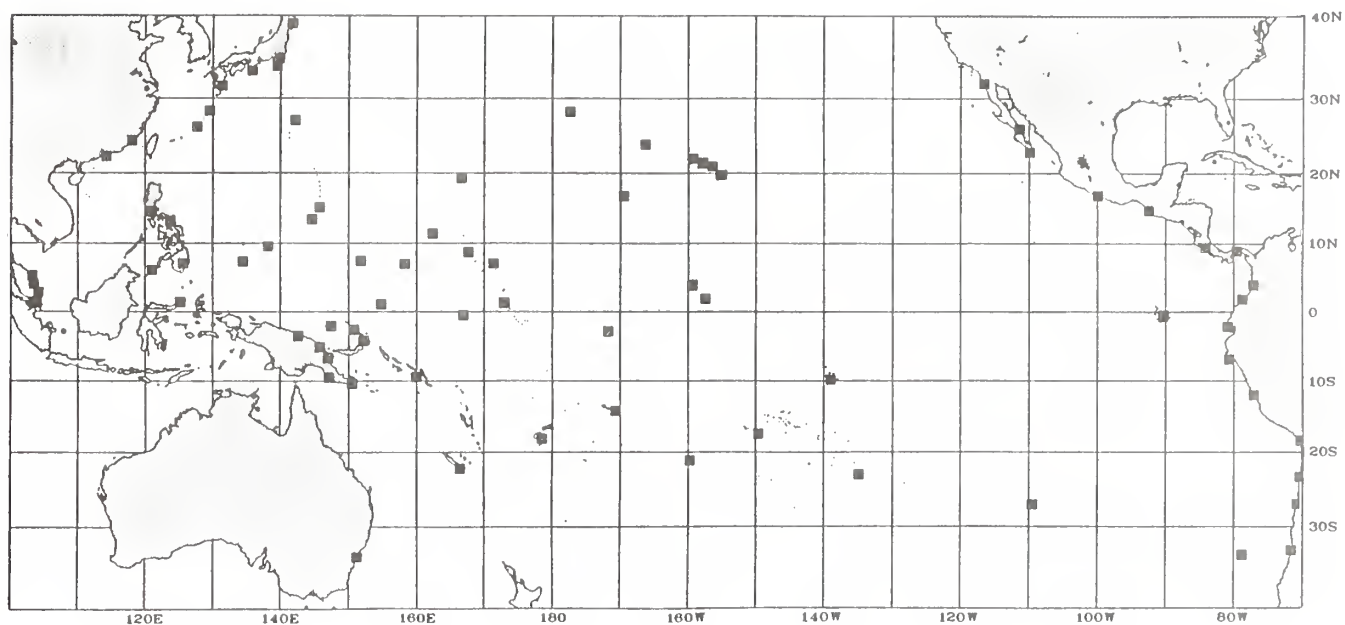
NODC maintains the JASL permanent archive of sea level data in three archive data files that contain hourly data, daily data, and monthly data. Data for selected stations can be retrieved from these data files and provided to customers on magnetic tape or - for small data volumes - on a floppy disk at prices determined by data volume and output medium.

The JASL data set is available from:

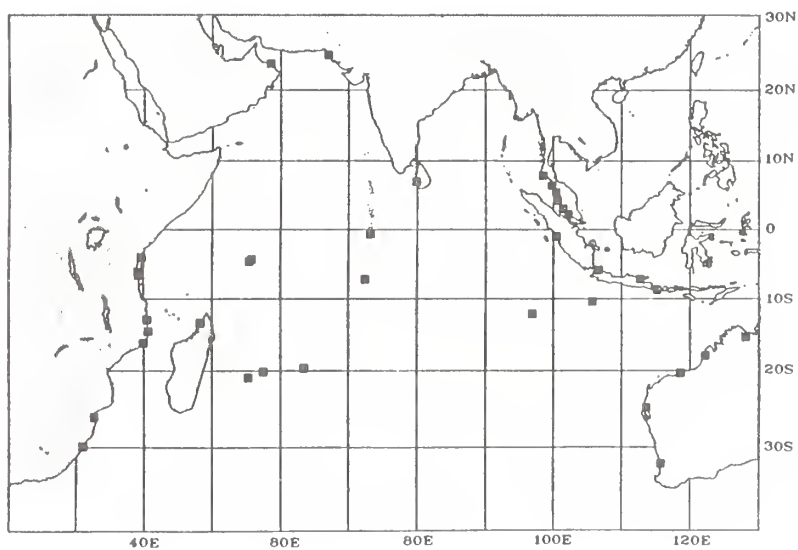
World Data Center A, Oceanography
National Oceanic and Atmospheric Administration
Washington, D.C. 20235 U.S.A.

Certain stations may have unresolved problems. These data are retained at the TOGA Sea Level Center and may be obtained on a case-by-case basis. For these data and for questions concerning data preparation contact:

The Joint Archive for Sea Level
c/o The TOGA Sea Level Center
University of Hawaii
1000 Pope Rd. MSB 417
Honolulu, Hawaii 96822 U.S.A.



Pacific Ocean sea-level stations with quality-controlled data in the JASL archive



Indian Ocean sea-level stations with quality-controlled data in the JASL archive

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